Mr. Melvin L. Spaulding
Consolidated Grain and Barge Co.
P.O. Box 548
Mount Vernon, Indiana 47620-0548

Re: Significant Source Modification No:
129-12235-00035

Dear Mr. Spaulding:

Consolidated Grain and Barge Company applied for a Part 70 operating permit on September 2, 1998, for a soybean oil extraction plant. An application to modify the source was received on May 4, 2000. Pursuant to 326 IAC 2-7-10.5 the modifications to existing emission units and construction of new emission units outlined in the Technical support document are approved.

The proposed Significant Source Modification approval will be incorporated into the pending Part 70 permit application pursuant to 326 IAC 2-7-10.5(l)(3). If there are no changes to the proposed construction of the emission units, the source may begin operating on the date that IDEM receives an affidavit of construction pursuant to 326 IAC 2-7-10.5(h). If there are any changes to the proposed construction the source can not operate until an Operation Permit Validation Letter is issued.

This decision is subject to the Indiana Administrative Orders and Procedures Act - IC 4-21.5-3-5. If you have any questions on this matter call (800) 451-6027, press 0 and ask for Janusz Johnson or extension 2-8325, or dial (317) 232-8325.

Sincerely,

Paul Dubenetzky, Chief
Permits Branch
Office of Air Management

Attachments
JKJ
cc: File - Posey County
U.S. EPA, Region V
Posey County Health Department
Southwest Regional Office
Air Compliance Section Inspector - Scott Anslinger
Compliance Data Section - Karen Nowak
Administrative and Development - Janet Mobley
Technical Support and Modeling - Michele Boner

PART 70 SIGNIFICANT SOURCE MODIFICATION
OFFICE OF AIR MANAGEMENT

Consolidated Grain and Barge Company
Bluff Road
Mount Vernon, Indiana 47620

(herein known as the Permittee) is hereby authorized to construct and operate subject to the conditions contained herein, the emission units described in Section A (Source Summary) of this approval.

This approval is issued in accordance with 326 IAC 2 and 40 CFR Part 70 Appendix A and contains the conditions and provisions specified in 326 IAC 2-7 as required by 42 U.S.C. 7401, et. seq. (Clean Air Act as amended by the 1990 Clean Air Act Amendments), 40 CFR Part 70.6, IC 13-15 and IC 13-17.

Source Modification No.: 129-12235-00035	
Issued by: Paul Dubenetzky, Branch Chief Office of Air Management	Issuance Date:

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SECTION A SOURCE SUMMARY

This approval is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Management (OAM). The information describing the emission units contained in conditions A.1 through A.2 is descriptive information and does not constitute enforceable conditions. However, the Permittee should be aware that a physical change or a change in the method of operation that may render this descriptive information obsolete or inaccurate may trigger requirements for the Permittee to obtain additional permits or seek modification of this approval pursuant to 326 IAC 2, or change other applicable requirements presented in the permit application.

A.1 General Information [326 IAC 2-7-4(c)] [326 IAC 2-7-5(15)]

The Permittee owns and operates soybean oil extraction plant.

Responsible Official:	Melvin L. Spaulding
Source Address:	Bluff Road, Mt. Vernon, Indiana, 47620
Mailing Address:	P.O. Box 548, Mt. Vernon, Indiana, 47620-0548
SIC Code:	2075
County Location:	Posey
County Status:	Attainment for all criteria pollutants
Source Status:	Part 70 Permit Program Minor Source, under PSD Rules; Major Source, Section 112 of the Clean Air Act

A.2 Emission Units and Pollution Control Equipment Summary [326 IAC 2-7-4(c)(3)] [326 IAC 2-7-5(15)]

This stationary source is approved to construct or modify and operate the following emission units and pollution control devices:

(a) one (1) truck only soybean north receiving area (P24) with a maximum throughput capacity of 360 tons per hour consisting of:

(1) one (1) truck only receiving pit that controls PM emissions with one (1) baghouse (C24) that exhausts to Stack 24;

(b) one (1) north house bin loading area (P27) with a maximum throughput capacity of 360 tons per hour loading consisting of:

(1) one (1) totally enclosed aspirated elevator leg that transfers soybeans to enclosed conveyors at a maximum rate of 720,000 pounds per hour;

(2) three (3) enclosed conveyors that transfer the soybean from the north receiving area to the soybean storage areas at a combined maximum rate of 720,000 pounds per hour;

(c) one (1) north storage/loadout area (P25) with a maximum throughput capacity of 360 tons per hour loading/unloading consisting of:

(1) two (2) steel storage tanks with a maximum capacity of 21,000 tons (700,000 bushels), each, that utilize oil application to control PM emissions;

(2) two (2) enclosed conveyors that transfer the soybean from the storage area to the loadout bin at a combined maximum rate of 720,000 pounds per hour;

(d) one (1) soybean expander (P23) with a maximum capacity of 50 tons per hour that controls PM emissions with one (1) cyclone (C23) that exhausts to Stack 23.

(e) one (1) truck only soybean receiving area (P1) with a maximum throughput capacity of 600 tons per hour consisting of:

(1) one (1) truck only receiving pit that controls PM emissions with one (1) baghouse (C1) that exhausts to Stack 1,
(2) one (1) totally enclosed belt conveyor system (or equivalent) that utilizes an oil application to control PM emissions,
(3) one (1) aspirated soybean receiving leg that utilizes an oil application and one (1) baghouse (C1) that exhausts to Stack 1 to control PM emissions,
(4) one (1) drag conveyor that transfers the soybean from the receiving leg to the soybean covered belt conveyor, and
(5) one (1) covered belt conveyor that loads the soybean storage silos;

(f) one (1) truck and rail soybean and hull receiving area (P2) with a maximum throughput capacity of 540 tons per hour consisting of:

(1) two (2) H.B. truck and rail receiving pits that control PM emissions by restricting vehicles unloading grain at these stations to hopper-bottom rail cars and trucks with choke unloading applications,
(2) one (1) enclosed drag conveyor system (or equivalent) that utilizes an oil application to control PM emissions,
(3) two (2) aspirated soybean and hull receiving legs that utilize an oil application and one (1) baghouse (C1) that exhausts to Stack 1 to control PM emissions,
(4) one (1) enclosed drag conveyor that transfers the soybean at a maximum rate of 540 tons per hour from the receiving leg to the soybean covered belt conveyor that loads the soybean silos and the hull at a maximum rate of 170 tons per hour from the receiving leg to the hull covered belt conveyor that loads the hull silos;

(g) one (1) barge soybean receiving area (P16) with a maximum throughput capacity of 540 tons per hour consisting of:

(1) one (1) clamshell crane or bucket unloading to one (1) aspirated hopper unloading to one (1) enclosed belt/mass flow conveyor that controls PM emissions with one (1) baghouse (C16) that exhausts to Stack 16,
(2) one (1) enclosed conveyor system that utilizes an oil application to control PM emissions,
(3) one (1) enclosed bucket elevator, and
(4) one (1) enclosed belt/mass flow conveyor that discharges to the truck and rail receiving scale;

(h) twelve (12) concrete soybean silos, with a maximum storage capacity of 2,191.6 tons (73,053 bushels) each, that utilize an oil application to control PM emissions;

(i) four (4) concrete soybean storage silos with a maximum capacity of 19,375 bushels each, that utilize an oil application to control PM emissions;

(j) two (2) concrete soybean storage silos, with a maximum capacity of 18,801 bushels each, that utilize an oil application to control PM emissions;

(k) one (1) flow coating material kaolin receiving bin that controls PM emissions with one (1) baghouse (C3) that exhausts to Stack 3;

(l) one (1) flow coating material enclosed conveyor system that transfers kaolin to the enclosed mixing screw conveyor at a maximum rate of 0.417 tons per hour;

(m) three (3) totally enclosed drag conveyors (or equivalent) comprising two conveyance systems located below the storage silos that transfer the soybeans from the silos to the elevator legs at a maximum rate of 115 tons per hour per system. Only one system operates at any given time and the systems utilize an oil application to control PM emissions;

(n) two (2) soybean elevator legs that transfer the soybeans from the drag conveyor to the cleaner at a maximum rate of 115 tons per hour each, and utilize an oil application to control PM emissions;

(o) one (1) totally enclosed conveyor that transfers the soybeans from the elevator legs to the magnet at a maximum rate of 115 tons per hour;

(p) one (1) magnet, with a maximum capacity of 115 tons per hour, that utilizes both an oil application and one (1) baghouse (C4) that exhausts to Stack 4 to control PM emissions;

(q) one (1) cleaning system with a maximum capacity of 115 tons per hour consisting of: one (1) cleaner, two (2) aspirators, two (2) hoppers, and one (1) scale that utilize both an oil application and one (1) baghouse (C4) that exhausts to Stack 4 to control PM emissions and one (1) aspirator and one (1) breaker that utilize one (1) cyclone (C5E) that exhaust to Stack 5 to control PM;

(r) one (1) soybean heater, with a maximum capacity of 115 tons per hour, that exhausts to Stack 21;

(s) one (1) L-Path totally enclosed drag conveyor (or equivalent) that transfers the cleaned soybeans at a maximum rate of 115 tons per hour;

(t) one (1) enclosed drag conveyor (or equivalent) that transfers soybeans to the jet dryers at a maximum rate of 115 tons per hour;

(u) three (3) jet dryers, with a maximum capacity of 42 tons per hour each, that controls PM emissions with three (3) cyclones (C5A, C5B, and C5F) that exhaust to Stack 5;

(v) three (3) primary CCD dryers, with a combined maximum capacity of 115 tons per hour, that controls PM emissions with two (2) cyclones (C5C and C5G) that exhaust to Stack 5;

(w) three (3) secondary CCC coolers, with a combined maximum capacity of 115 tons per hour, that controls PM emissions with two (2) cyclones (C5D and C5H) that exhaust to Stack 5;

(x) six (6) cracking and dehulling rolls, with a combined maximum capacity of 115 tons per hour, that transfer the hulls through four (4) cyclones (C5C, C5D, C5G, and C5H) to an enclosed conveyor;

(y) one (1) totally enclosed cracking and dehulling drag conveyor (or equivalent) that transfers hulls from cyclones C5A and, and C5B to the hull grinding system at a maximum rate of 8.05 tons per hour;

(z) one (1) totally enclosed cracking and dehulling drag conveyor (or equivalent) that transfers hulls and aspirated fines from cyclones C5C, C5D, C5F, C5G, C5H, and the totally enclosed auger (or equivalent) of filter C4 to the hull screener and aspirator at a maximum rate of 8.05 tons per hour;

(aa) one (1) hull screener and aspirator, with a maximum capacity of 8.05 tons per hour, that controls PM emissions with one (1) cyclone (C5E) that exhausts to Stack 5;

(bb) one (1) totally enclosed drag conveyor (or equivalent) that transfers hulls from the hull screener to the hull grinders at a maximum rate of 8.05 tons per hour;

(cc) two (2) hull grinders, with a maximum system capacity of 8.05 tons per hour, that transfers the ground hulls to one (1) baghouse (C6) that exhausts to Stack 6;

(dd) hull storage bins, with a maximum capacity of 39,000 cubic feet, that controls PM emissions with one (1) baghouse (C7) that exhausts to Stack 7;

(ee) one (1) totally enclosed drag conveyor (or equivalent) that transfers hulls to the hull hopper at a maximum rate of 15 tons per hour;

(ff) one (1) hull hopper that feeds to the pellet mill at a maximum rate of 15 tons per hour that controls PM emissions with one (1) baghouse (C7A) that exhausts to Stack 7A;

(gg) one (1) hull pellet mill with a maximum capacity of 15 tons per hour;

(hh) one (1) hull pellet cooler, with a maximum capacity of 15 tons per hour, that controls PM emissions with one (1) cyclone (C8) that exhausts to Stack 8;

(ii) pellet storage bins with a maximum capacity of 70,000 cubic feet, that controls PM emissions with one (1) baghouse (C8A) that exhausts to Stack 8A;

(jj) one (1) totally enclosed drag conveyor (or equivalent) that transfers beans from the cracking and dehulling conveyors to the flakers at a maximum rate of 104.9 tons per hour;

(kk) nine (9) flakers, with a combined maximum capacity of 104.9 tons per hour, that controls PM emissions with three (3) baghouses (C19A, C19B, and C19C) that exhaust to Stack 19;

(ll) one (1) totally enclosed drag conveyor (or equivalent) that transfers beans from the flakers to the feed screw conveyor at a maximum rate of 104.9 tons per hour;

(mm) one (1) feed screw conveyor that transfers beans to the extractor at a maximum rate of 104.9 tons per hour;

(nn) one (1) soybean oil extractor, with a maximum capacity of 104.9 tons of soybean flakes per hour and 104.9 tons of hexane per hour, that controls hexane (VOC) emissions with one (1) mineral oil absorber system (C13) that exhausts to Stack 13;

(oo) one (1) desolventizer unit, with a maximum capacity of 86.8 tons of spent soybean flakes per hour, that exhausts hexane emissions through one (1) mineral oil absorber system (C13) to Stack 13;

(pp) a set of evaporators, with a maximum capacity of 20.7 tons of soybean oil per hour, that controls hexane emissions with one (1) mineral oil absorber system (C13) that exhaust to Stack 13;

(qq) a set of condensers and water separator to separate hexane and water, with a maximum capacity of 20.7 tons of soybean oil per hour, that controls hexane emissions with one (1) mineral oil absorber system (C13) that exhaust to Stack 13;

(rr) one (1) totally enclosed drag conveyor (or equivalent) that transfers flakes and hexane to the desolventizer at a maximum rate of 86.8 tons per hour and 34.5 tons per hour, respectively;

(ss) one (1) DTDC meal dryer section 1, with a maximum drying capacity of 83.4 tons of meal per hour, that controls PM emissions with one (1) cyclone (C10) that exhausts to Stack 10;

(tt) one (1) DTDC meal dryer section 2, with a maximum drying capacity of 83.4 tons of meal per hour, that controls PM emissions with one (1) cyclone (C11) that exhausts to Stack 11;

(uu) one (1) DTDC meal cooler section, with a maximum cooling capacity of 83.4 tons of meal per hour, that transfers the meal to one (1) cyclone (C12) to Stack 12;

(vv) one (1) DTDC enclosed screw conveyor (or equivalent) that transfers meal from the DTDC meal cooler to the meal surge conveyor bin at a maximum capacity of 83.4 tons per hour;

(xx) one (1) totally enclosed surge bin conveyor that transfers the meal to the surge bins at a maximum rate of 83.4 tons per hour;

(yy) two (2) meal surge bins, with a maximum storage capacity of 19,500 cubic feet, that feed to the screeners or the recycle leg;

(zz) one (1) elevator leg that transfers the meal to the sizing process at a maximum rate of 83.4 tons per hour;

(aaa) five (5) meal screeners, with a maximum capacity of 83.4 tons of meal per hour, that controls PM emissions with one (1) baghouse (C9) that exhausts to Stack 9;

(bbb) one (1) meal screening hopper that controls PM emissions with one (1) baghouse (C9) that exhausts to Stack 9;

(ccc) two (2) meal grinders, with a combined maximum capacity of 83.4 tons per year, that controls PM emissions with one (1) baghouse (C9) that exhausts to Stack 9;

(ddd) two (2) meal grinding hoppers and two (2) aspirators that controls PM emissions with one (1) baghouse (C9) that exhausts to Stack 9;

(eee) one (1) totally enclosed drag conveyor (or equivalent) that transfers meal from the grinding hoppers to the meal mixing screw conveyor at a maximum rate of 83.4 tons per hour;

(fff) one (1) enclosed meal mixing screw conveyor (or equivalent) that transfers meal to the mixed meal elevator leg at a maximum rate of 83.8 tons per hour;

(ggg) one (1) mixed meal elevator leg, with a maximum capacity of 83.8 tons per hour, that controls PM emissions with one (1) baghouse (C9) that exhausts to Stack 9;

(hhh) one (1) totally enclosed drag conveyor (or equivalent) that transfers meal from the mixed meal elevator leg to the meal storage tanks, load out bins and bulk weigh system at a maximum rate of 83.8 tons per hour;

(iii) meal storage tanks (capacity 292,000 cubic feet) and loadout bins (capacity 58,000 cubic feet), with a combined maximum storage capacity of 350,000 cubic feet, that controls PM emissions with one (1) baghouse (C20) that exhausts to Stack 20;

(jjj) one (1) totally enclosed drag conveyor (or equivalent) that transfers soybean meal from the meal storage tanks to the meal elevator leg at a maximum rate of 300 tons per hour;

(kkk) one (1) meal elevator leg that operates at a maximum capacity of 300 tons per hour and controls PM emissions with one (1) baghouse (C20) that exhausts to Stack 20;

(lll) one (1) truck loadout scalper that operates at a maximum capacity of 383.3 tons per hour;

(mmm) two (2) totally enclosed drag conveyors (or equivalent) that transfer meal from the meal loadout bins to the truck at a maximum rate of 383.3 tons per hour each;

(nnn) one (1) truck loadout chute that operates at a maximum capacity of 383.3 tons per hour and controls PM emissions with one (1) baghouse (C14) that exhausts to Stack 14;

(ooo) one (1) rail and barge loadout scalper that operates at a maximum capacity of 383.3 tons per hour;

(ppp) one (1) rail and barge bulk weigh system consisting of one (1) upper garner, one (1) weigh hopper, and one (1) lower surge that operates at a maximum capacity of 383.3 tons per hour;

(qqq) one (1) totally enclosed drag conveyors (or equivalent) that transfer meal from the lower surge to the rail at a maximum rate of 383.3 tons per hour;

(rrr) two (2) rail loadout systems that operates at a maximum total capacity of 383.3 tons per hour, based on only one system operating at a time, and control PM emissions with one (1) baghouse (C15) that exhausts to Stack 15;

(sss) one (1) reversible enclosed conveyor system that has the ability to receive soybeans from the barge to the truck and rail receiving leg at a maximum rate of 540 tons per hour or transfer soybean meal from the lower surge to the barge loadout system at a maximum rate of 383.3 tons;

(ttt) one (1) barge loadout system that operates at a maximum capacity of 383.3 tons per hour and controls PM emissions with one (1) baghouse (C15) that exhausts to Stack 15;

(uuu) three (3) 33.7 million (MM)Btu per hour natural gas fired boilers that exhaust to Stacks 17, 18, and 18A;

(vvv) two (2) fixed roof hexane storage tanks with a maximum storage capacity of 14,000 gallons each;

(www) one (1) fixed roof hexane work tank with a maximum storage capacity of 8,000 gallons;

(xxx) four (4) fixed roof soybean oil storage tanks with a maximum storage capacity of 932 cubic meters each;

(yyy) three (3) fixed roof soybean oil storage day tanks with a maximum storage capacity of 114 cubic meters each; and

(zzz) one (1) fixed roof dust suppression soybean/mineral oil storage tank with a maximum storage capacity of 1,000 gallons.

A.3 Part 70 Permit Applicability [326 IAC 2-7-2]

This stationary source is required to have a Part 70 permit by 326 IAC 2-7-2 (Applicability) because:

(a) It is a major source, as defined in 326 IAC 2-7-1(22);

(b) It is a source in a source category designated by the United States Environmental Protection Agency (U.S. EPA) under 40 CFR 70.3 (Part 70 - Applicability).

SECTION B GENERAL CONSTRUCTION CONDITIONS

B.1 Permit No Defense [IC 13]

This approval to construct does not relieve the Permittee of the responsibility to comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated thereunder, as well as other applicable local, state, and federal requirements.

B.2 Definitions [326 IAC 2-7-1]

Terms in this approval shall have the definition assigned to such terms in the referenced regulation. In the absence of definitions in the referenced regulation, any applicable definitions found in IC 13-11, 326 IAC 1-2 and 326 IAC 2-7 shall prevail.

B.3 Effective Date of the Permit [IC13-15-5-3]

Pursuant to IC 13-15-5-3, this approval becomes effective upon its issuance.

B.4 Revocation of Permits [326 IAC 2-1.1-9(5)][326 IAC 2-7-10.5(i)]

Pursuant to 326 IAC 2-1.1-9(5)(Revocation of Permits), the Commissioner may revoke this approval if construction is not commenced within eighteen (18) months after receipt of this approval or if construction is suspended for a continuous period of one (1) year or more.

B.5 Significant Source Modification [326 IAC 2-7-10.5(h)]

This document shall also become the approval to operate pursuant to 326 IAC 2-7-10.5(h) when, prior to start of operation, the following requirements are met:

(a) The attached affidavit of construction shall be submitted to the Office of Air Management (OAM), Permit Administration & Development Section, verifying that the emission units were constructed as proposed in the application. The emissions units covered in the Significant Source Modification approval may begin operating on the date the affidavit of construction is postmarked or hand delivered to IDEM if constructed as proposed.

(b) If actual construction of the emissions units differs from the construction proposed in the application, the source may not begin operation until the source modification has been revised pursuant to 326 IAC 2-7-11 or 326 IAC 2-7-12 and an Operation Permit Validation Letter is issued.

(c) If construction is completed in phases; i.e., the entire construction is not done continuously, a separate affidavit must be submitted for each phase of construction. Any permit conditions associated with operation start up dates such as stack testing for New Source Performance Standards (NSPS) shall be applicable to each individual phase.

(d) The Permittee shall receive an Operation Permit Validation Letter from the Chief of the Permit Administration & Development Section and attach it to this document.

SECTION C GENERAL OPERATION CONDITIONS

C.1 Certification [326 IAC 2-7-4(f)][326 IAC 2-7-6(1)][326 IAC 2-7-5(3)(C)]

(a) Where specifically designated by this approval or required by an applicable requirement, any application form, report, or compliance certification submitted under this approval shall contain certification by a responsible official of truth, accuracy, and completeness. This certification, shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

(b) One (1) certification shall be included, on the attached Certification Form, with each submittal.

(c) A responsible official is defined at 326 IAC 2-7-1(34).

C.2 Preventive Maintenance Plan [326 IAC 2-7-5(1),(3) and (13)] [326 IAC 2-7-6(1) and (6)] [326 IAC 1-6-3]

(a) If required by specific condition(s) in Section D of this approval, the Permittee shall prepare and maintain Preventive Maintenance Plans (PMP) within ninety (90) days after issuance of this approval, including the following information on each facility:

(1) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices;

(2) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions;

(3) Identification and quantification of the replacement parts that will be maintained in inventory for quick replacement.

If due to circumstances beyond its control, the PMP cannot be prepared and maintained within the above time frame, the Permittee may extend the date an additional ninety (90) days provided the Permittee notifies:

Indiana Department of Environmental Management
Compliance Branch, Office of Air Management
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

(b) The Permittee shall implement the Preventive Maintenance Plans as necessary to ensure that failure to implement the Preventive Maintenance Plan does not cause or contribute to a violation of any limitation on emissions or potential to emit.

(c) PMP's shall be submitted to IDEM, OAM, upon request and shall be subject to review and approval by IDEM, OAM. IDEM, OAM, may require the Permittee to revise its Preventive Maintenance Plan whenever lack of proper maintenance causes or contributes to any violation.

C.3 Permit Amendment or Modification [326 IAC 2-7-11] [326 IAC 2-7-12]

(a) The Permittee must comply with the requirements of 326 IAC 2-7-11 or 326 IAC 2-7-12 whenever the Permittee seeks to amend or modify this approval.

(b) Any application requesting an amendment or modification of this approval shall be submitted to:

Indiana Department of Environmental Management
Permits Branch, Office of Air Management
100 North Senate Avenue, P.O. Box 6015
Indianapolis, Indiana 46206-6015

Any such application should be certified by the "responsible official" as defined by 326 IAC 2-7-1(34) only if a certification is required by the terms of the applicable rule

(c) The Permittee may implement administrative amendment changes addressed in the request for an administrative amendment immediately upon submittal of the request. [326 IAC 2-7-11(c)(3)]

C.4 Opacity [326 IAC 5-1]

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Exemptions), opacity shall meet the following, unless otherwise stated in this approval:

(a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

(b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

C.5 Operation of Equipment [326 IAC 2-7-6(6)]

Except as otherwise provided in this approval, all air pollution control equipment listed in this approval and used to comply with an applicable requirement shall be operated at all times that the emission units vented to the control equipment are in operation.

C.6 Stack Height [326 IAC 1-7]

The Permittee shall comply with the applicable provisions of 326 IAC 1-7 (Stack Height Provisions), for all exhaust stacks through which a potential (before controls) of twenty-five (25) tons per year or more of particulate matter or sulfur dioxide is emitted by using good engineering practices (GEP) pursuant to 326 IAC 1-7-3.

Testing Requirements [326 IAC 2-7-6(1)]

C.7 Performance Testing [326 IAC 3-6][326 IAC 2-1.1-11]

(a) Compliance testing on new emission units shall be conducted within 60 days after achieving maximum production rate, but no later than 180 days after initial start-up, if specified in Section D of this approval. All testing shall be performed according to the provisions of 326 IAC 3-6 (Source Sampling Procedures), except as provided elsewhere in this approval, utilizing any applicable procedures and analysis methods specified in 40 CFR 51, 40 CFR 60, 40 CFR 61, 40 CFR 63, 40 CFR 75, or other procedures approved by IDEM, OAM.

A test protocol, except as provided elsewhere in this approval, shall be submitted to:

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Management
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

no later than thirty-five (35) days prior to the intended test date. The Permittee shall submit a notice of the actual test date to the above address so that it is received at least two weeks prior to the test date.

(b) All test reports must be received by IDEM, OAM within forty-five (45) days after the completion of the testing. An extension may be granted by the IDEM, OAM, if the source submits to IDEM, OAM, a reasonable written explanation within five (5) days prior to the end of the initial forty-five (45) day period.

The documentation submitted by the Permittee does not require certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

Compliance Monitoring Requirements [326 IAC 2-7-5(1)] [326 IAC 2-7-6(1)]

C.8 Compliance Monitoring [326 IAC 2-7-5(3)] [326 IAC 2-7-6(1)]

Compliance with applicable requirements shall be documented as required by this approval. All monitoring and record keeping requirements not already legally required shall be implemented within ninety (90) days of approval issuance. The Permittee shall be responsible for installing any necessary equipment and initiating any required monitoring related to that equipment. If due to circumstances beyond its control, that equipment cannot be installed and operated within ninety (90) days, the Permittee may extend the compliance schedule related to the equipment for an additional ninety (90) days provided the Permittee notifies:

Indiana Department of Environmental Management
Compliance Branch, Office of Air Management
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

in writing, prior to the end of the initial ninety (90) day compliance schedule, with full justification of the reasons for the inability to meet this date.

The notification which shall be submitted by the Permittee does require the certification by the “responsible official” as defined by 326 IAC 2-7-1(34).

C.9 Maintenance of Monitoring Equipment [326 IAC 2-7-5(3)(A)(iii)]

(a) In the event that a breakdown of the monitoring equipment occurs, a record shall be made of the times and reasons of the breakdown and efforts made to correct the problem. To the extent practicable, supplemental or intermittent monitoring of the parameter should be implemented at intervals no less frequent than required in Section D of this approval until such time as the monitoring equipment is back in operation.

(b) The Permittee shall install, calibrate, quality assure, maintain, and operate all necessary monitors and related equipment. In addition, prompt corrective action shall be initiated whenever indicated.

C.10 Pressure Gauge Specifications

Whenever a condition in this permit requires the measurement of pressure drop across any part of the unit or its control device, the gauge employed shall have a scale such that the expected normal reading shall be no less than twenty percent (20%) of full scale and be accurate within plus or minus two percent (±2%) of full scale reading.

Corrective Actions and Response Steps [326 IAC 2-7-5] [326 IAC 2-7-6]

C.11 Compliance Monitoring Plan - Failure to Take Response Steps [326 IAC 2-7-5][326 IAC 2-7-6] [326 IAC 1-6]

(a) The Permittee is required to implement a compliance monitoring plan to ensure that reasonable information is available to evaluate its continuous compliance with applicable requirements. This compliance monitoring plan is comprised of:

(1) This condition;

(2) The Compliance Determination Requirements in Section D of this approval;

(3) The Compliance Monitoring Requirements in Section D of this approval;

(4) The Record Keeping and Reporting Requirements in Section C (Monitoring Data Availability, General Record Keeping Requirements, and General Reporting Requirements) and in Section D of this approval; and

(5) A Compliance Response Plan (CRP) for each compliance monitoring condition of this approval. CRP's shall be submitted to IDEM, OAM upon request and shall be subject to review and approval by IDEM, OAM. The CRP shall be prepared within ninety (90) days after issuance of this approval by the Permittee and maintained on site, and is comprised of :

(A) Response steps that will be implemented in the event that compliance related information indicates that a response step is needed pursuant to the requirements of Section D of this approval; and

(B) A time schedule for taking such response steps including a schedule for devising additional response steps for situations that may not have been predicted.

(b) For each compliance monitoring condition of this approval, appropriate response steps shall be taken when indicated by the provisions of that compliance monitoring condition. Failure to perform the actions detailed in the compliance monitoring conditions or failure to take the response steps within the time prescribed in the Compliance Response Plan, shall constitute a violation of the approval unless taking the response steps set forth in the Compliance Response Plan would be unreasonable.

(c) After investigating the reason for the excursion, the Permittee is excused from taking further response steps for any of the following reasons:

(1) The monitoring equipment malfunctioned, giving a false reading. This shall be an excuse from taking further response steps providing that prompt action was taken to correct the monitoring equipment.

(2) The Permittee has determined that the compliance monitoring parameters established in the approval conditions are technically inappropriate, has previously submitted a request for an administrative amendment to the approval, and such request has not been denied or;

(3) An automatic measurement was taken when the process was not operating; or

(4) The process has already returned to operating within "normal" parameters and no response steps are required.

(d) Records shall be kept of all instances in which the compliance related information was not met and of all response steps taken. In the event of an emergency, the provisions of 326 IAC 2-7-16 (Emergency Provisions) requiring prompt corrective action to mitigate emissions shall prevail.

C.12 Actions Related to Noncompliance Demonstrated by a Stack Test [326 IAC 2-7-5] [326 IAC 2-7-6]

(a) When the results of a stack test performed in conformance with Section C - Performance Testing, of this approval exceed the level specified in any condition of this approval, the Permittee shall take appropriate corrective actions. The Permittee shall submit a description of these corrective actions to IDEM, OAM, within thirty (30) days of receipt of the test results. The Permittee shall take appropriate action to minimize emissions from the affected facility while the corrective actions are being implemented. IDEM, OAM shall notify the Permittee within thirty (30) days, if the corrective actions taken are deficient. The Permittee shall submit a description of additional corrective actions taken to IDEM, OAM within thirty (30) days of receipt of the notice of deficiency. IDEM, OAM reserves the authority to use enforcement activities to resolve noncompliant stack tests.

(b) A retest to demonstrate compliance shall be performed within one hundred twenty (120) days of receipt of the original test results. Should the Permittee demonstrate to IDEM, OAM that retesting in one-hundred and twenty (120) days is not practicable, IDEM, OAM may extend the retesting deadline. Failure of the second test to demonstrate compliance with the appropriate approval conditions may be grounds for immediate revocation of the approval to operate the affected facility.

The documents submitted pursuant to this condition do not require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

C.13 Monitoring Data Availability [326 IAC 2-7-6(1)] [326 IAC 2-7-5(3)]

(a) With the exception of performance tests conducted in accordance with Section C-Performance Testing, all observations, sampling, maintenance procedures, and record keeping, required as a condition of this approval shall be performed at all times the equipment is operating at normal representative conditions.

(b) As an alternative to the observations, sampling, maintenance procedures, and record keeping of subsection (a) above, when the equipment listed in Section D of this approval is not operating, the Permittee shall either record the fact that the equipment is shut down or perform the observations, sampling, maintenance procedures, and record keeping that would otherwise be required by this approval.

(c) If the equipment is operating but abnormal conditions prevail, additional observations and sampling should be taken with a record made of the nature of the abnormality.

(d) If for reasons beyond its control, the operator fails to make required observations, sampling, maintenance procedures, or record keeping, reasons for this must be recorded.

(e) At its discretion, IDEM may excuse such failure providing adequate justification is documented and such failures do not exceed five percent (5%) of the operating time in any quarter.

(f) Temporary, unscheduled unavailability of staff qualified to perform the required observations, sampling, maintenance procedures, or record keeping shall be considered a valid reason for failure to perform the requirements stated in (a) above.

C.14 General Record Keeping Requirements [326 IAC 2-7-5(3)][326 IAC 2-7-6]

(a) Records of all required monitoring data and support information shall be retained for a period of at least five (5) years from the date of monitoring sample, measurement, report, or application. These records shall be kept at the source location for a minimum of three (3) years and available upon the request of an IDEM, OAM representative. The records may be stored elsewhere for the remaining two (2) years as long as they are available upon request. If the Commissioner makes a written request for records to the Permittee, the Permittee shall furnish the records to the Commissioner within a reasonable time.

(b) Records of required monitoring information shall include, where applicable:

(1) The date, place, and time of sampling or measurements;

(2) The dates analyses were performed;

(3) The company or entity performing the analyses;

(4) The analytic techniques or methods used;

(5) The results of such analyses; and

(6) The operating conditions existing at the time of sampling or measurement.

(c) Support information shall include, where applicable:

(1) Copies of all reports required by this approval;

(2) All original strip chart recordings for continuous monitoring instrumentation;

(3) All calibration and maintenance records;

(4) Records of preventive maintenance shall be sufficient to demonstrate that failure to implement the Preventive Maintenance Plan did not cause or contribute to a violation of any limitation on emissions or potential to emit. To be relied upon subsequent to any such violation, these records may include, but are not limited to: work orders, parts inventories, and operator's standard operating procedures. Records of response steps taken shall indicate whether the response steps were performed in accordance with the Compliance Response Plan required by Section C - Compliance Monitoring Plan - Failure to take Response Steps, of this approval, and whether a deviation from an approval condition was reported. All records shall briefly describe what maintenance and response steps were taken and indicate who performed the tasks.

(d) All record keeping requirements not already legally required shall be implemented within ninety (90) days of approval issuance.

C.15 General Reporting Requirements [326 IAC 2-7-5(3)(C)]

(a) The reports required by conditions in Section D of this approval shall be submitted to:

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Management
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

(b) Unless otherwise specified in this approval, any notice, report, or other submission required by this approval shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAM, on or before the date it is due.

(c) Unless otherwise specified in this approval, any quarterly or semi-annual report shall be submitted within thirty (30) days of the end of the reporting period. The report does not require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

(d) The first report shall cover the period commencing on the date of issuance of this approval and ending on the last day of the reporting period.

SECTION D.1 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)]:

(a) one (1) truck only soybean north receiving area (P24) with a maximum throughput capacity of 360 tons per hour consisting of:
  (1) one (1) truck only receiving pit that controls PM emissions with one (1) baghouse (C24) that exhausts to Stack 24;

(b) one (1) north house bin loading area (P27) with a maximum throughput capacity of 360 tons per hour loading consisting of:
  (1) one (1) totally enclosed aspirated elevator leg that transfers soybeans to enclosed conveyors at a maximum rate of 720,000 pounds per hour;
  (2) three (3) enclosed conveyors that transfer the soybean from the north receiving area to the soybean storage areas at a combined maximum rate of 720,000 pounds per hour;

(c) one (1) north storage/loadout area (P25) with a maximum throughput capacity of 360 tons per hour loading/unloading consisting of:
  (1) two (2) steel storage tanks with a maximum capacity of 21,000 tons (700,000 bushels), each, that utilize oil application to control PM emissions;
  (2) two (2) enclosed conveyors that transfer the soybean from the storage area to the loadout bin at a combined maximum rate of 720,000 pounds per hour;

(d) one (1) soybean expander (P23) with a maximum capacity of 50 tons per hour that controls PM emissions with one (1) cyclone (C23) that exhausts to Stack 23.

(e) one (1) truck only soybean receiving area (P1) with a maximum throughput capacity of 600 tons per hour consisting of:
  (1) one (1) truck only receiving pit that controls PM emissions with one (1) baghouse (C1) that exhausts to Stack 1,
  (2) one (1) totally enclosed belt conveyor system (or equivalent) that utilizes an oil application to control PM emissions,
  (3) one (1) aspirated soybean receiving leg that utilizes an oil application and one (1) baghouse (C1) that exhausts to Stack 1 to control PM emissions,
  (4) one (1) drag conveyor that transfers the soybean from the receiving leg to the soybean covered belt conveyor, and
  (5) one (1) covered belt conveyor that loads the soybean storage silos;

(f) one (1) truck and rail soybean and hull receiving area (P2) with a maximum throughput capacity of 540 tons per hour consisting of:
  (1) two (2) H.B. truck and rail receiving pits that control PM emissions by restricting vehicles unloading grain at these stations to hopper-bottom rail cars and trucks with choke unloading applications,
  (2) one (1) enclosed drag conveyor system (or equivalent) that utilizes an oil application to control PM emissions,
  (3) two (2) aspirated soybean and hull receiving legs that utilize an oil application and one (1) baghouse (C1) that exhausts to Stack 1 to control PM emissions,
  (4) one (1) enclosed drag conveyor that transfers the soybean at a maximum rate of 540 tons per hour from the receiving leg to the soybean covered belt conveyor that loads the soybean silos and the hull at a maximum rate of 170 tons per hour from the receiving leg to the hull covered belt conveyor that loads the hull silos;

(cont.)

(g) one (1) barge soybean receiving area (P16) with a maximum throughput capacity of 540 tons per hour consisting of:
  (1) one (1) clamshell crane or bucket unloading to one (1) aspirated hopper unloading to one (1) enclosed belt/mass flow conveyor that controls PM emissions with one (1) baghouse (C16) that exhausts to Stack 16,
  (2) one (1) enclosed conveyor system that utilizes an oil application to control PM emissions,
  (3) one (1) enclosed bucket elevator, and
  (4) one (1) enclosed belt/mass flow conveyor that discharges to the truck and rail receiving scale;

(h) twelve (12) concrete soybean silos, with a maximum storage capacity of 2,191.6 tons (73,053 bushels) each, that utilize an oil application to control PM emissions;

(i) four (4) concrete soybean storage silos with a maximum capacity of 19,375 bushels each, that utilize an oil application to control PM emissions;

(j) two (2) concrete soybean storage silos, with a maximum capacity of 18,801 bushels each, that utilize an oil application to control PM emissions;

(k) one (1) flow coating material kaolin receiving bin that controls PM emissions with one (1) baghouse (C3) that exhausts to Stack 3;

(l) one (1) flow coating material enclosed conveyor system that transfers kaolin to the enclosed mixing screw conveyor at a maximum rate of 0.417 tons per hour;

(m) three (3) totally enclosed drag conveyors (or equivalent) comprising two conveyance systems located below the storage silos that transfer the soybeans from the silos to the elevator legs at a maximum rate of 115 tons per hour per system. Only one system operates at any given time and the systems utilize an oil application to control PM emissions;

(n) two (2) soybean elevator legs that transfer the soybeans from the drag conveyor to the cleaner at a maximum rate of 115 tons per hour each, and utilize an oil application to control PM emissions;

(o) one (1) totally enclosed conveyor that transfers the soybeans from the elevator legs to the magnet at a maximum rate of 115 tons per hour;

(p) one (1) magnet, with a maximum capacity of 115 tons per hour, that utilizes both an oil application and one (1) baghouse (C4) that exhausts to Stack 4 to control PM emissions;

(q) one (1) cleaning system with a maximum capacity of 115 tons per hour consisting of: one (1) cleaner, two (2) aspirators, two (2) hoppers, and one (1) scale that utilize both an oil application and one (1) baghouse (C4) that exhausts to Stack 4 to control PM emissions and one (1) aspirator and one (1) breaker that utilize one (1) cyclone (C5E) that exhaust to Stack 5 to control PM

(r) one (1) soybean heater, with a maximum capacity of 115 tons per hour, that exhausts to Stack 21;

(s) one (1) L-Path totally enclosed drag conveyor (or equivalent) that transfers the cleaned soybeans at a maximum rate of 115 tons per hour;

(cont.)

(t) one (1) enclosed drag conveyor (or equivalent) that transfers soybeans to the jet dryers at a maximum rate of 115 tons per hour;

(u) three (3) jet dryers, with a maximum capacity of 42 tons per hour each, that controls PM emissions with three (3) cyclones (C5A, C5B, and C5F) that exhaust to Stack 5;

(v) three (3) primary CCD dryers, with a combined maximum capacity of 115 tons per hour, that controls PM emissions with two (2) cyclones (C5C and C5G) that exhaust to Stack 5;

(w) three (3) secondary CCC coolers, with a combined maximum capacity of 115 tons per hour, that controls PM emissions with two (2) cyclones (C5D and C5H) that exhaust to Stack 5;

(x) six (6) cracking and dehulling rolls, with a combined maximum capacity of 115 tons per hour, that transfer the hulls through four (4) cyclones (C5C, C5D, C5G, and C5H) to an enclosed conveyor;

(y) one (1) totally enclosed cracking and dehulling drag conveyor (or equivalent) that transfers hulls from cyclones C5A and, and C5B to the hull grinding system at a maximum rate of 8.05 tons per hour;

(z) one (1) totally enclosed cracking and dehulling drag conveyor (or equivalent) that transfers hulls and aspirated fines from cyclones C5C, C5D, C5F, C5G, C5H, and the totally enclosed auger (or equivalent) of filter C4 to the hull screener and aspirator at a maximum rate of 8.05 tons per hour;

(aa) one (1) hull screener and aspirator, with a maximum capacity of 8.05 tons per hour, that controls PM emissions with one (1) cyclone (C5E) that exhausts to Stack 5;

(bb) one (1) totally enclosed drag conveyor (or equivalent) that transfers hulls from the hull screener to the hull grinders at a maximum rate of 8.05 tons per hour;

(cc) two (2) hull grinders, with a maximum system capacity of 8.05 tons per hour, that transfers the ground hulls to one (1) baghouse (C6) that exhausts to Stack 6;

(dd) hull storage bins, with a maximum capacity of 39,000 cubic feet, that controls PM emissions with one (1) baghouse (C7) that exhausts to Stack 7;

(ee) one (1) totally enclosed drag conveyor (or equivalent) that transfers hulls to the hull hopper at a maximum rate of 15 tons per hour;

(ff) one (1) hull hopper that feeds to the pellet mill at a maximum rate of 15 tons per hour that controls PM emissions with one (1) baghouse (C7A) that exhausts to Stack 7A;

(gg) one (1) hull pellet mill with a maximum capacity of 15 tons per hour;

(hh) one (1) hull pellet cooler, with a maximum capacity of 15 tons per hour, that controls PM emissions with one (1) cyclone (C8) that exhausts to Stack 8;

(ii) pellet storage bins with a maximum capacity of 70,000 cubic feet, that controls PM emissions with one (1) baghouse (C8A) that exhausts to Stack 8A;

(cont.)

(jj) one (1) totally enclosed drag conveyor (or equivalent) that transfers beans from the cracking and dehulling conveyors to the flakers at a maximum rate of 104.9 tons per hour;

(kk) nine (9) flakers, with a combined maximum capacity of 104.9 tons per hour, that controls PM emissions with three (3) baghouses (C19A, C19B, and C19C) that exhaust to Stack 19;

(ll) one (1) totally enclosed drag conveyor (or equivalent) that transfers beans from the flakers to the feed screw conveyor at a maximum rate of 104.9 tons per hour;

(mm) one (1) feed screw conveyor that transfers beans to the extractor at a maximum rate of 104.9 tons per hour;

(nn) one (1) soybean oil extractor, with a maximum capacity of 104.9 tons of soybean flakes per hour and 104.9 tons of hexane per hour, that controls hexane (VOC) emissions with one (1) mineral oil absorber system (C13) that exhausts to Stack 13;

(oo) one (1) desolventizer unit, with a maximum capacity of 86.8 tons of spent soybean flakes per hour, that exhausts hexane emissions through one (1) mineral oil absorber system (C13) to Stack 13;

(pp) a set of evaporators, with a maximum capacity of 20.7 tons of soybean oil per hour, that controls hexane emissions with one (1) mineral oil absorber system (C13) that exhaust to Stack 13;

(qq) a set of condensers and water separator to separate hexane and water, with a maximum capacity of 20.7 tons of soybean oil per hour, that controls hexane emissions with one (1) mineral oil absorber system (C13) that exhaust to Stack 13;

(rr) one (1) totally enclosed drag conveyor (or equivalent) that transfers flakes and hexane to the desolventizer at a maximum rate of 86.8 tons per hour and 34.5 tons per hour, respectively;

(ss) one (1) DTDC meal dryer section 1, with a maximum drying capacity of 83.4 tons of meal per hour, that controls PM emissions with one (1) cyclone (C10) that exhausts to Stack 10;

(tt) one (1) DTDC meal dryer section 2, with a maximum drying capacity of 83.4 tons of meal per hour, that controls PM emissions with one (1) cyclone (C11) that exhausts to Stack 11;

(uu) one (1) DTDC meal cooler section, with a maximum cooling capacity of 83.4 tons of meal per hour, that transfers the meal to one (1) cyclone (C12) to Stack 12;

(vv) one (1) DTDC enclosed screw conveyor (or equivalent) that transfers meal from the DTDC meal cooler to the meal surge conveyor bin at a maximum capacity of 83.4 tons per hour;

(xx) one (1) totally enclosed surge bin conveyor that transfers the meal to the surge bins at a maximum rate of 83.4 tons per hour;

(yy) two (2) meal surge bins, with a maximum storage capacity of 19,500 cubic feet, that feed to the screeners or the recycle leg;

(zz) one (1) elevator leg that transfers the meal to the sizing process at a maximum rate of 83.4 tons per hour;

cont.

(aaa) five (5) meal screeners, with a maximum capacity of 83.4 tons of meal per hour, that controls PM emissions with one (1) baghouse (C9) that exhausts to Stack 9;

(bbb) one (1) meal screening hopper that controls PM emissions with one (1) baghouse (C9) that exhausts to Stack 9;

(ccc) two (2) meal grinders, with a combined maximum capacity of 83.4 tons per year, that controls PM emissions with one (1) baghouse (C9) that exhausts to Stack 9;

(ddd) two (2) meal grinding hoppers and two (2) aspirators that controls PM emissions with one (1) baghouse (C9) that exhausts to Stack 9;

(eee) one (1) totally enclosed drag conveyor (or equivalent) that transfers meal from the grinding hoppers to the meal mixing screw conveyor at a maximum rate of 83.4 tons per hour;

(fff) one (1) enclosed meal mixing screw conveyor (or equivalent) that transfers meal to the mixed meal elevator leg at a maximum rate of 83.8 tons per hour;

(ggg) one (1) mixed meal elevator leg, with a maximum capacity of 83.8 tons per hour, that controls PM emissions with one (1) baghouse (C9) that exhausts to Stack 9;

(hhh) one (1) totally enclosed drag conveyor (or equivalent) that transfers meal from the mixed meal elevator leg to the meal storage tanks, load out bins and bulk weigh system at a maximum rate of 83.8 tons per hour;

(iii) meal storage tanks (capacity 292,000 cubic feet) and loadout bins (capacity 58,000 cubic feet), with a combined maximum storage capacity of 350,000 cubic feet, that controls PM emissions with one (1) baghouse (C20) that exhausts to Stack 20;

(jjj) one (1) totally enclosed drag conveyor (or equivalent) that transfers soybean meal from the meal storage tanks to the meal elevator leg at a maximum rate of 300 tons per hour;

(kkk) one (1) meal elevator leg that operates at a maximum capacity of 300 tons per hour and controls PM emissions with one (1) baghouse (C20) that exhausts to Stack 20;

(lll) one (1) truck loadout scalper that operates at a maximum capacity of 383.3 tons per hour;

(mmm) two (2) totally enclosed drag conveyors (or equivalent) that transfer meal from the meal loadout bins to the truck at a maximum rate of 383.3 tons per hour each;

(nnn) one (1) truck loadout chute that operates at a maximum capacity of 383.3 tons per hour and controls PM emissions with one (1) baghouse (C14) that exhausts to Stack 14;

(ooo) one (1) rail and barge loadout scalper that operates at a maximum capacity of 383.3 tons per hour;

(ppp) one (1) rail and barge bulk weigh system consisting of one (1) upper garner, one (1) weigh hopper, and one (1) lower surge that operates at a maximum capacity of 383.3 tons per hour;

(qqq) one (1) totally enclosed drag conveyors (or equivalent) that transfer meal from the lower surge to the rail at a maximum rate of 383.3 tons per hour;

cont.

(rrr) two (2) rail loadout systems that operates at a maximum total capacity of 383.3 tons per hour, based on only one system operating at a time, and control PM emissions with one (1) baghouse (C15) that exhausts to Stack 15;

(sss) one (1) reversible enclosed conveyor system that has the ability to receive soybeans from the barge to the truck and rail receiving leg at a maximum rate of 540 tons per hour or transfer soybean meal from the lower surge to the barge loadout system at a maximum rate of 383.3 tons;

(ttt) one (1) barge loadout system that operates at a maximum capacity of 383.3 tons per hour and controls PM emissions with one (1) baghouse (C15) that exhausts to Stack 15;

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.1.1 General Provisions Relating to NSPS [326 IAC 12-1][40 CFR Part 60, Subpart A]

The provisions of 40 CFR Part 60, Subpart A - General Provisions, which are incorporated by reference in 326 IAC 12-1, apply to the affected facilities described in this section except when otherwise specified in 40 CFR Part 60, Subpart DD.

D.1.2 New Source Performance Standards(NSPS) Grain Elevators [326 IAC 12] [40 CFR Subpart DD 60.302(b)]

Pursuant to 40 CFR Subpart DD 60.302(b), gases discharged into the atmosphere from the:

(a) north truck only receiving pit; north house bin loading area elevator and conveyors; north storage/loadout area conveyors;

(b) receiving area P1 truck only receiving pit, belt conveyor system, aspirated receiving leg, drag conveyor and covered belt conveyor;

(c) receiving area P2 hopper bottom truck and rail receiving pits, drag conveyors and aspirated receiving legs;

(d) barge receiving area clamshell crane or bucket unloading, aspirated hopper, belt/mass flow conveyors, conveyor system and bucket elevators;

(e) drag conveyors comprising two conveyance systems between the storage silos and elevator legs; elevator legs; conveyor between the elevator legs and magnet;

(f) cleaning system cleaner, aspirators, hoppers, and scale; and

(g) L-Path drag conveyor; drag conveyor to the jet dryers;

shall not exceed particulate matter (PM) concentrations of 0.01 gr/dscf. Gases from these facilities shall not exhibit greater than 0 percent opacity.

D.1.3 New Source Performance Standards(NSPS) Grain Elevators [326 IAC 12] [40 CFR Subpart DD 60.302(c)]

(a) Pursuant to 40 CFR Subpart DD 60.302(c)(1), fugitive emissions from the truck unloading area P1, hopper bottom truck and rail car unloading area P2, and north truck unloading area shall not exhibit greater than 5 % opacity.

(b) Pursuant to 40 CFR Subpart DD 60.302(c)(2), fugitive emissions from the grain handling operations shall not exhibit greater than 0 % opacity 40 CFR Subpart DD 60.302(c).

(c) Pursuant to 40 CFR Subpart DD 60.302(c)(4), the barge unloading operation shall operate as follows:

(1) The unloading leg shall be enclosed from the top (including the receiving hopper) to the center line of the bottom pulley and ventilation to a control device shall be maintained on both sides of the leg and the grain receiving hopper.

(2) The total rate of air ventilated shall be at least 32.1 actual cubic meters per cubic meter of grain handling capacity.

D.1.4 PSD Minor Limit [326 IAC 2-2] [40 CFR 52.21]

The throughput of processed soybeans to the soybean processing facilities shall not exceed 940,240 tons per twelve (12) consecutive month period. This limit is required such that the PTE PM and VOC is less than 250 tons per year. Compliance with this limit makes 326 IAC 2-2 (Prevention of Significant Deterioration) and 40 CFR 52.21 not applicable.

D.1.5 Particulate Matter (PM) [326 IAC 6-3-2(c)]

Pursuant to 326 IAC 6-3-2, the PM from the:

Truck Receiving and Conveyors (P1), Rail/Hopper Bed Truck Receiving (P2), North Truck Receiving and Conveyors, Barge Grain Receiving (P16), Annex Silo Loading (P2A), Merchandizing Silo Loading (P26), North House Bin Loading, North House Storage Loadout, Soybean Cleaning (P4), Soybean Heater (P21), Soybean Cracking/Dehulling (P5), Soybean Expander (P23), Soybean Flaking (P19), DTDC Meal Drying (P10 & P11), DTDC Meal Cooling (P12), Meal Sizing (P9), Kaolin Handling (P3), Hull Grinding (P6), Hull Storage Loading (P7), Hull Storage Unloading (P7), Hull Pellet Cooling (P8), Hull Pellet Storage (P8), Meal Storage & Loadout Bins (P20), Truck Meal Loadout (P14), and Barge/Rail Meal Loadout (P15)

shall not exceed the pound per hour emission rate established as E in one of the following applicable formulas:

Interpolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$E = 4.10\ P^{0.67}$ where E = rate of emission in pounds per hour; and P = process weight rate in tons per hour

-- or --

Interpolation and extrapolation of the data for the process weight rate in excess of sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$E = 55.0\ P^{0.11} - 40$ where E = rate of emission in pounds per hour; and P = process weight rate in tons per hour

D.1.6 Particulate Matter Emission Rate Limitations

Pursuant to Consolidated Grain and Barge Company's request, the particulate matter (PM) emission rates shall be limited to the potential controlled emissions as reported below:

Process	PM Emission Rate
Truck Receiving and Conveyors (P1)	0.56 lb/hr
Rail/Hopper Bed Truck Receiving (P2)	0.014 lb/ton bean unloaded
North Truck Receiving and Conveyors (P24)	0.43 lb/hr
Barge Grain Receiving (P16)	0.69 lb/hr
Annex Silo Loading (P2A)	0.003 lb/ton bean handled
Merchandizing Silo Loading (P26)	0.009 lb/ton bean handled
North House Bin Loading	0.009 lb/ton bean handled
North House Storage Loadout	0.009 lb/ton bean handled
Soybean Cleaning (P4)	0.82 lb/hr
Soybean Heater (P21) and Soybean Cracking/Dehulling (P5)	12.40 lbs/hr
Soybean Expander (P23)	2.50 lb/hr
Soybean Flaking (P19)	0.39 lb/hr
DTDC Meal Drying Section 1 (P10)	10.00 lb/hr
DTDC Meal Drying Section 2 (P11)	1.80 lb/hr
DTDC Meal Cooling (P12)	1.00 lb/hr
Meal Sizing (P9)	0.26 lb/hr
Kaolin Handling (P3)	0.10 lb/hr
Hull Grinding (P6)	0.03 lb/hr
Hull Storage and Handling (P7)	0.34 lb/hr
Hull Pellet Cooling (P8)	5.14 lb/hr
Hull Pellet Storage (P8)	0.17 lb/hr
Meal Storage & Loadout Bins (P20)	0.26 lb/hr
Truck Meal Loadout (P14)	0.69 lb/hr
Barge/Rail Meal Loadout (P15)	0.69 lb/hr

Compliance with these voluntary limits satisfies the requirements of 326 IAC 6-3-2 in Condition D.1.5 for these facilities.

D.1.7 Best Available Control Technology (BACT) [326 IAC 8-1-6]

Pursuant to CP-129-7488-00035 (issued on July 17, 1995), as revised in this source modification (129-12235-00035), the VOC (hexane) emissions from the soybean oil extractor plant shall comply with the Best Available Control Technology (BACT) for the oil extractor, meal dryers, and meal cooler. The company shall assure compliance with BACT by performing monitoring and recordkeeping such that the following limits are not exceeded:

(a) the hexane usage shall be limited to 0.225 gallons per ton of soybean crushed, and

(b) the total amount of soybeans processed at the plant shall meet the limit established in Condition D.1.4.

The limits established correspond to the following BACT determinations:

Facility	BACT	VOC (Hexane) Emission Limit including upset conditions
The extraction and distillation process including the oil extractor, desolventizer, evaporators, solvent separator and vent system	Mineral Oil Absorber System	0.084 lb/ton soybean processed
Meal dryers	None	0.30 lb/ton soybean processed
Meal cooler	None	0.051 lb/ton soybean processed

The company will minimize the hexane emissions by training the operators and supervisors. At the end of each calendar year, the company shall submit to the IDEM a progress report of efforts taken to reduce hexane emissions from the plant.

D.1.8 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for these facilities and any control devices.

Compliance Determination Requirements

D.1.9 Testing Requirements [326 IAC 2-7-6(1),(6)][326 IAC 2-1.1-11]

Within sixty (60) days of reaching maximum capacity but no later than 180 days after initial startup, the Permittee shall perform particulate matter (PM) and volatile organic compound (VOC) testing utilizing Method 5 for PM and Method 25 for VOC (40 CFR 60, Appendix A), or other methods as approved by the Commissioner. Testing shall be conducted in accordance with Section C- Performance Testing.

Consolidated Grain and Barge Company shall submit a stack testing plan to the IDEM within 30 days after initial start-up. This plan shall outline the measures to be taken to demonstrate compliance with permitted emission rates and must be approved by IDEM. The plan shall identify the facilities and the methods in which emissions from the representative facilities of the following facilities list shall be evaluated to determine initial compliance at the increased plant capacity:

Facility	Pollutant
P1 - Truck Receiving and Conveyors Baghouse (C1)	PM

North Truck Only Receiving Baghouse (C24)	PM
Barge Receiving Baghouse (C16)	PM
Oil application dust control on P1 Truck Receiving or H.B. Truck and Rail Receiving conveyors	PM
Oil application dust control on Annex Silo Loading, Merchandizing Silo Loading or North House Storage/Loadout	PM
Soybean Cleaning System Baghouse (C4) and Aspirator/Breaker Cyclone (C5E)	PM
Soybean Heater	PM
Jet Dryers Cyclones (C5A, C5B and C5F)	PM
Primary CCD Dryers Cyclones (C5C and C5G)	PM
Secondary CCC Coolers Cyclones (C5D and C5H)	PM
Soybean Expander Cyclone (C23)	PM
Soybean Flaking Baghouses (C19A, C19B and C19C)	PM
DTDC Meal Drying Section 1 Cyclone (C10)	PM, VOC
DTDC Meal Drying Section 2 Cyclone (C11)	PM, VOC
DTDC Meal Cooling Cyclone (C12)	PM, VOC
Oil Extractor, Evaporator and Condenser Mineral Oil Absorber System (C13)	VOC
Meal Sizing Baghouse (C9)	PM
Kaolin Bin Vent Baghouse (C3)	PM
Hull Grinding Baghouse (C6)	PM
Hull Storage Bin Baghouse (C7) and Hopper Baghouse (C7A)	PM
Hull Pellet Cooling Cyclone (C8)	PM
Hull Pellet Storage Baghouse (C8A)	PM
Meal Storage & Loadout Bins Baghouse (C20)	PM
Truck Meal Loadout Baghouse (C14)	PM
Barge/Rail Meal Loadout Baghouse (C15)	PM

D.1.10 Volatile Organic Compounds (VOC)

Pursuant to CP129-7488-00035, the procedures to demonstrate compliance with the VOC emissions from the mineral oil absorber vent, meal dryers, meal cooler and total hexane usage shall be as follows:

(a) The mineral oil absorption vent VOC (hexane) emission rate shall be determined daily by measuring the airflow rate and the concentration of the hexane in the air stream. This concentration shall be determined by measuring the percent LEL. If the air flow meter proves unreliable, airflow can be determined by calculations.

(b) The hexane emission rate from the DTDC dryer cyclones and DTDC cooler cyclone shall be determined daily by laboratory test if the lower meal temperature of the desolventizer is below 215 degrees F. If the meal temperature of the desolventizer is above 215 degrees F, then the hexane emission rate will be based upon the compliance test results.

D.1.11 Particulate Matter (PM)

Compliance with PM emission limitations contained in Conditions D.1.2, D.1.5 and D.1.6 shall be demonstrated by the following conditions:

(a) The baghouses for the North Truck Receiving, P1 Truck Receiving/Receiving Leg, Barge Receiving/Conveyors, Kaolin Receiving Bins, Magnet, Cleaning System, Hull Grinders, Hull Storage Bins, Pellet Mill Hull Feed Hopper, Pellet Storage Bins, Meal Flakers, Meal Screeners, Meal Screening Hopper, Meal Grinders, Mixed Meal Elevator Leg, Truck Loadout, Rail Loadout, and Barge Loadout shall be in operation at all times those facilities are in operation.

(b) The cyclones for the Cleaning System, Jet Dryers, CCD Dryers, CCC Coolers, Cracking and Dehulling, Hull Screening/Aspiration, Hull Pellet Cooler, DTDC Dryers, DTDC Cooler shall operate at all times when those facilities are in operation.

(c) Dust control oil shall be applied at all times that the Conveyors/Legs, Storage Silos, Magnet, Cleaning system and loading/unloading operations listed as utilizing said control are in operation. Oil application shall be at a rate determined appropriate based on PM compliance tests.

(d) The H.B. Truck and Rail receiving pits shall be limited to hopper bottom rail cars and trucks with choke unloading. Unloading at these receiving pits shall be conducted inside a two-sided and roofed enclosure to minimize fugitive emissions. Guidelines shall be posted in this area which address these operational limitations.

(e) Emissions shall be minimized in all receiving, handling, and shipping operations by appropriate methods. These may include, but may not be limited to: dust collection systems, windscreens, baffles, restricted hopper openings, enclosed transfer points, and flexible drop spouts and/or sleeves.

(f) Good housekeeping and equipment maintenance procedures shall be implemented.

D.1.12 Volatile Organic Compounds (VOC)

The mineral oil absorber shall operate at all times the soybean oil extractor, desolventizer, evaporators or condensers are in operation.

D.1.13 VOC and PM Emissions

Compliance with Condition D.1.4 shall be demonstrated within 30 days of the end of month based on the total processed grain throughput for that month and the previous eleven (11) months.

Compliance Monitoring Requirements [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

D.1.14 Visible Emissions Notations

(a) Daily visible emission notations of the baghouse, cyclone, and absorber stack exhausts shall be performed during normal daylight operations when exhausting to the atmosphere. A trained employee shall record whether emissions are normal or abnormal.

(b) Daily visible emission notations of the H.B. Truck and Rail receiving pits shall be performed from outside the receiving area enclosure during normal daylight operations when rail car or truck unloading is occurring. A trained employee shall record whether emissions are normal or abnormal. These notations should be taken from a position approximately perpendicular to the prevailing wind direction which allows the trained employee to see the leeward side of the structure.

(b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.

(c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.

(d) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.

(e) The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when an abnormal emission is observed.

D.1.15 Parametric Monitoring

The Permittee shall record the total static pressure drops across the baghouses used in conjunction with the North Truck Receiving, P1 Truck Receiving/Receiving Leg, Barge Receiving/Conveyors, Kaolin Receiving Bins, Magnet, Cleaning System, Hull Grinders, Hull Storage Bins, Pellet Mill Hull Feed Hopper, Pellet Storage Bins, Meal Flakers, Meal Screeners, Meal Screening Hopper, Meal Grinders, Mixed Meal Elevator Leg, Truck Loadout, Rail Loadout, and Barge Loadout at least once daily when the associated emission unit is in operation and venting to the atmosphere. Unless operated under conditions for which the Compliance Response Plan specifies otherwise, the pressure drop across the baghouses shall be maintained within the range of 3.0 and 9.0 inches of water or a range established during the latest stack test. The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when the pressure reading is outside of the above mentioned range for any one reading.

The instrument used for determining the pressure shall comply with Section C - Pressure Gauge Specifications, of this permit, shall be subject to approval by IDEM, OAM, and shall be calibrated at least once every six (6) months.

D.1.16 Baghouse Inspections

(a) An inspection shall be performed each calender quarter of all bags controlling the North Truck Receiving, P1 Truck Receiving/Receiving Leg, Barge Receiving/Conveyors, Kaolin Receiving Bins, Truck Loadout, Rail Loadout, and Barge Loadout operations when venting to the atmosphere. All defective bags shall be replaced.

(b) An inspection shall be performed at least annually of all bags controlling the Magnet, Cleaning System, Hull Grinders, Hull Storage Bins, Pellet Mill Hull Feed Hopper, Pellet Storage Bins, Meal Flakers, Meal Screeners, Meal Screening Hopper, Meal Grinders, and Mixed Meal Elevator Leg operations when venting to the atmosphere. All defective bags shall be replaced.

D.1.17 Broken or Failed Bag Detection

In the event that bag failure has been observed:

(a) The affected compartments will be shut down immediately until the failed units have been repaired or replaced. Within eight (8) hours of the determination of failure, response steps according to the timetable described in the Compliance Response Plan shall be initiated. For any failure with corresponding response steps and timetable not described in the Compliance Response Plan, response steps shall be devised within eight (8) hours of discovery of the failure and shall include a timetable for completion. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of 326 IAC 2-7-16 including timely notification, prompt corrective action to mitigate emissions, and specifically the requirements outlined in 326 IAC 2-7-16(g).

(b) For single compartment baghouses, failed units and the associated process will be shut down immediately until the failed units have been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of 326 IAC 2-7-16 including timely notification, prompt corrective action to mitigate emissions, and specifically the requirements outlined in 326 IAC 2-7-16(g).

D.1.18 Cyclone Inspections

An inspection of the external surface shall be performed at least annually of all cyclones controlling the Cleaning System, Jet Dryers, CCD Dryers, CCC Coolers, Cracking and Dehulling, Hull Screening/Aspiration, Hull Pellet Cooler, DTDC Dryers, DTDC Cooler operations when venting to the atmosphere.

D.1.19 Cyclone Failure Detection

In the event that cyclone failure has been observed:

Failed units and the associated process will be shut down immediately until the failed units have been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of 326 IAC 2-7-16 including timely notification, prompt corrective action to mitigate emissions, and specifically the requirements outlined in 326 IAC 2-7-16(g).

D.1.20 VOC Monitoring

The following parameters shall be monitored for the extraction process:

(a) The inlet vacuum pressure of the vapor stream to the absorber shall not exceed 10 inches of water and the flow rate of the mineral oil through the absorber shall not be less than 15 gallons per minute. When the process is in operation, an electronic data management system (EDMS) shall record the instantaneous inlet vacuum pressure and flow rate on a frequency of not less than every 15 minutes.

(b) The temperature of the mineral oil entering the absorber shall be kept in a range of 70 to 105 degrees Fahrenheit (^{o}F). When the process is in operation, an electronic data management system (EDMS) shall record the instantaneous temperature on a frequency of not less than every 15 minutes.

(c) The temperature of the soybean oil entering the mineral-oil-stripping column shall not be less than 200 degrees Fahrenheit (^{o}F) for adequate stripping of the absorbed hexane from the oil. When the process is in operation, an EDMS shall record the instantaneous temperature on a frequency of not less than every 15 minutes.

The Compliance Response Plan for these units shall contain troubleshooting contingency and response steps for when the parameter readings are outside of the above mentioned ranges. In the event that a breakdown of the EDMS occurs, a record shall be made of the times and reasons of the breakdown and efforts made to correct the problem. To the extent practicable, supplemental or intermittent monitoring of the parameters should be implemented at intervals no less frequent than every 2 hours.

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.1.21 Record Keeping Requirements

(a) To document compliance with Condition D.1.14, the Permittee shall maintain daily work shift records of visible emission notations of all baghouse and cyclone stack exhausts.

(b) To document compliance with Conditions D.1.15 the Permittee shall maintain the following:

(1) Daily work shift records of the following operational parameters during normal operation when venting to the atmosphere:

(A) Baghouse total static pressure drop across the tubesheet;

(B) Cleaning cycle: frequency and differential pressure. For baghouses that have cleaning cycles or differential pressure preset by the manufacturer, the Permittee can document the preset cycle or differential pressure once, versus re-documenting the preset every day, provided the preset cycle or differential pressure does not change.

(2) Documentation of all response steps implemented, per event .

(3) Operation and preventive maintenance logs, including work purchases orders, shall be maintained.

(4) Quality Assurance/Quality Control (QA/QC) procedures.

(5) Operator standard operating procedures (SOP).

(6) Manufacturer's specifications or its equivalent.

(7) Equipment "troubleshooting" contingency plan.

(c) To document compliance with Conditions D.1.16 and D.1.18, the Permittee shall maintain records of the results of the inspections required.

(d) To document compliance with Conditions D.1.10 and D.1.20, the Permittee shall maintain the following:

(1) Records of the daily airflow and VOC (hexane) concentration measured at the vent for the mineral oil absorber.

(2) Records of the days the lower meal temperature of the desolventizer is below 215 degrees F and meal laboratory VOC test results for those days.

(3) Electronic data management system (EDMS) records for the inlet vacuum pressure of the vapor stream to the absorber, flow rate of the mineral oil through

the absorber, the mineral oil temperature entering the absorber and soybean oil temperature entering the stripping column. Records of the times and reasons of the breakdown of the EDMS and efforts made to correct the problem should accompany any supplemental or intermittent monitoring records occurring as a result of EDMS failure.

(e) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit

D.1.22 Reporting Requirements

A quarterly summary of the information to document compliance with Conditions D.1.4 and D.1.7(b) shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit, using the reporting form located at the end of this permit, or its equivalent, within thirty (30) days after the end of the quarter being reported.

SECTION D.2 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)]:

(uuu) three (3) 33.7 million (MM)Btu per hour natural gas fired boilers that exhaust to Stacks 17, 18, and 18A;

(The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.2.1 Particulate Matter Limitation (PM) [326 IAC 6-2-4]

Pursuant to 326 IAC 6-2-4 (Particulate Emission Limitations for Sources of Indirect Heating: Emission Limitations for Facilities Specified in 326 IAC 6-2-1 (d)), particulate emissions from the natural gas fired boilers used for indirect heating purposes shall be limited to 0.328 pounds per million BTU heat input.

D.2.2 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for these facilities.

Compliance Determination Requirements

D.2.3 Testing Requirements [326 IAC 2-7-6(1),(6)][326 IAC 2-1.1-11]

The Permittee is not required to test these facilities by this permit. However, IDEM may require compliance testing when necessary to determine if these facilities are in compliance. If testing is required by IDEM , compliance with the PM limit specified in Condition D.2.1 shall be determined by a performance test conducted in accordance with Section C - Performance Testing.

Compliance Monitoring Requirements [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

D.2.4 Visible Emissions Notations

(a) Visible emission notations of the boiler stack exhausts shall be performed once per shift during normal daylight operations when exhausting to the atmosphere. A trained employee shall record whether emissions are normal or abnormal.

(b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.

(c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.

(d) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.

(e) The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when an abnormal emission is observed.

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.2.5 Record Keeping Requirements [326 IAC 12] [40 CFR 60.48c]

(a) Pursuant to 326 IAC 12 and 40 CFR 60.48c (g), the owner or operator shall record and maintain monthly records of the amount of natural gas combusted in each of the boilers.

(b) To document compliance with Condition D.2.4, the Permittee shall maintain records of visible emission notations of the boiler stack exhausts once per shift.

(c) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

SECTION D.3 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)]:

(vvv) two (2) fixed roof hexane storage tanks with a maximum storage capacity of 14,000 gallons each;

(www) one (1) fixed roof hexane work tank with a maximum storage capacity of 8,000 gallons;

(xxx) four (4) fixed roof soybean oil storage tanks with a maximum storage capacity of 932 cubic meters each;

(yyy) three (3) fixed roof soybean oil storage day tanks with a maximum storage capacity of 114 cubic meters each; and

(zzz) one (1) fixed roof dust suppression soybean/mineral oil storage tank with a maximum storage capacity of 1,000 gallons.

(The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.3.1 New Source Performance Standards (NSPS) Volatile Organic Liquid (VOL) Storage Vessels (including petroleum liquid storage vessels) for Which Construction Commenced after July 23, 1984 [326 IAC 12] [40 CFR 60 Subpart Kb 60.116b]

Pursuant to 326 IAC 12 and 40 CFR 60, Subpart Kb, the owner or operator shall keep readily accessible records that report the dimensions and capacities of the four (4) soybean oil storage tanks and the two (2) hexane storage tanks. These records shall be maintained for the life of the tanks.

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR MANAGEMENT
COMPLIANCE DATA SECTION

PART 70 SOURCE MODIFICATION CERTIFICATION

Source Name: Consolidated Grain and Barge Company
Source Address: Bluff Road, Mt. Vernon, Indiana, 47620
Mailing Address: P.O. Box 548, Mt. Vernon, Indiana, 47620-0548
Source Modification No: 129-12235-00035

This certification shall be included when submitting monitoring, testing reports/results or other documents as required by this approval.

Please check what document is being certified:

9 Test Result (specify) _____

9 Report (specify) _____

9 Notification (specify) _____

9 Other (specify) _____

I certify that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

Signature:

Printed Name:

Title/Position:

Date:

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR MANAGEMENT
COMPLIANCE DATA SECTION

Part 70 Source Modification Quarterly Report

Source Name: Consolidated Grain and Barge Company
Source Address: Bluff Road, Mt. Vernon, Indiana, 47620
Mailing Address: P.O. Box 548, Mt. Vernon, Indiana, 47620-0548
Source Modification No: 129-12235-00035
Facility: Plant throughput limit
Parameter: PM, VOC
Limit: The throughput of processed soybeans to the soybean processing facilities shall not exceed 940,240 tons per twelve (12) consecutive month period.

YEAR: _____

Month	Column 1	Column 2	Column 1 + Column 2
	This Month	Previous 11 Months	12 Month Total
Month 1			
Month 2			
Month 3			

9 No deviation occurred in this quarter.

9 Deviation/s occurred in this quarter.
Deviation has been reported on: _____

Submitted by: _____
Title / Position: _____
Signature: _____
Date: _____
Phone: _____

Mail to: Permit Administration & Development Section
Office Of Air Management
100 North Senate Avenue
P. O. Box 6015
Indianapolis, Indiana 46206-6015

Consolidated Grain and Barge Co.
P.O. Box 548
Mt. Vernon, Indiana 47620-0548

Affidavit of Construction

I, _____, being duly sworn upon my oath, depose and say:
(Name of the Authorized Representative)

1. I live in _____ County, Indiana and being of sound mind and over twenty-one (21) years of age, I am competent to give this affidavit.

2. I hold the position of _____ for _____.
(Title) (Company Name)

3. By virtue of my position with _____,I have personal
(Company Name)
knowledge of the representations contained in this affidavit and am authorized to make these representations on behalf of _____ .
(Company Name)

4. I hereby certify that Consolidated Grain and Barge Co., Bluff Road, Mt. Vernon, Indiana, 47620, has constructed the modifications to the soybean oil extraction plant in conformity with the requirements and intent of the construction permit application received by the Office of Air Management on May 4, 2000, and as permitted pursuant to **Source Modification No. 129-12235-00035** issued on _____ .

Further Affiant said not.

I affirm under penalties of perjury that the representations contained in this affidavit are true, to the best of my information and belief.

_____
Signature

_____
Date

STATE OF INDIANA)
)SS
COUNTY OF _____)

Subscribed and sworn to me, a notary public in and for _____ County and State of Indiana on this _____ day of _____, 19 _____ .

My Commission expires: _____

_____
Signature

_____
Name (typed or printed)

Indiana Department of Environmental Management
Office of Air Management

Addendum to the
Technical Support Document for a Part 70 Significant Source Modification

Source Name:	Consolidated Grain and Barge Co.
Source Location:	Bluff Road, Mt. Vernon, Indiana
County:	Posey
Source Modification No.:	129-12235-00035
SIC Code:	2075
Permit Reviewer:	Janusz Johnson

On September 13, 2000, the Office of Air Management (OAM) had a notice published in the *Mount Vernon Democrat*, Mount Vernon, Indiana, stating that Consolidated Grain and Barge Co. had applied for a source modification to construct new facilities and increase the maximum annual processing capacity at the soybean oil extraction plant. The notice also stated that OAM proposed to issue a permit for this installation and provided information on how the public could review the proposed permit and other documentation. Finally, the notice informed interested parties that there was a period of thirty (30) days to provide comments on whether or not this permit should be issued as proposed.

On September 26, 2000, Consolidated Grain and Barge Co. (CGB) submitted comments on the proposed source modification. The summary of the comments and corresponding responses is as follows (new language is bolded for emphasis):

Comment 1: Section A.2, Item (b)(1) contains a typographical error. Insert “pounds” after 720,000.

Response 1: The following change has been made to this equipment description to correct the error:

(b)(1) one (1) totally enclosed aspirated elevator leg that transfers soybeans to enclosed conveyors at a maximum rate of 720,000 **pounds** per hour;

Comment 2: Section A.2, Item (g) contains a typographical error. Replace P21 with P16.

Response 2: The correct reference to the barge soybean receiving area is P16. The error in the equipment description has been fixed as follows:

(g) one (1) barge soybean receiving area (~~P21~~**P16**) with a maximum throughput capacity of 540 tons per hour consisting of:

Comment 3: Section A.2, Items (pp) and (qq) - Soybean oil has historically averaged 18% in the beans processed. The crush rate is 115 tons per hour. Therefore, the evaporator and condenser process rate should be corrected. The correct rate is 0.18 * 115: 20.7 tons per hour. Replace in both parts 17.9 with 20.7.

Response 3: The evaporator and condenser process rates have been changed to better represent the increased soybean throughput capacity of the plant. This change does not affect the calculated potential to emit (PTE) of the plant because it was based on the total annual bean throughput, which did not change as a result of this comment. The revised equipment descriptions are as follows:

(pp) a set of evaporators, with a maximum capacity of ~~17.9~~ **20.7** tons of soybean oil per hour, that controls hexane emissions with one (1) mineral oil absorber system (C13) that exhaust to Stack 13;

(qq) a set of condensers and water separator to separate hexane and water, with a maximum capacity of ~~17.9~~ **20.7** tons of soybean oil per hour, that controls hexane emissions with one (1) mineral oil absorber system (C13) that exhaust to Stack 13;

Comment 4: Condition B.5 - This part requires submittal of an affidavit of construction. Please include the required form with the final permit.

Response 4: This standardized form was accidentally not included with the draft permit. It will be included with the final permit when issued.

Comment 5: Condition C.9, Item (a) - This part refers to monitor maintenance and information documentation in the case of monitor malfunction. The condition wording originally was drafted to apply to CEMs; however, it is now intended to apply to any computerized monitoring. For this condition to be consistent with condition D.1.20, the same terminology should be used. Modify the last sentence of this part as follows:

In the case of ~~continuous~~ **computer** monitoring, ~~supplemental or intermittent monitoring of the parameter should be implemented at intervals no less than one (1) hour~~ **to the extent practicable, supplemental or intermittent monitoring of the parameters should be implemented at intervals no less frequent than every 2 hours** until such time as the ~~continuous~~ **computer** monitor**ing system** is back in operation.

Response 5: Condition C.9, Item (a) has been revised as follows to be consistent with Condition D.1.20 which specifies a two hour minimum interval for supplemental monitoring in the event of a computer monitoring system failure:

(a) In the event that a breakdown of the monitoring equipment occurs, a record shall be made of the times and reasons of the breakdown and efforts made to correct the problem. To the extent practicable, supplemental or intermittent monitoring of the parameter should be implemented at intervals no less frequent than required in Section D of this approval until such time as the monitoring equipment is back in operation. ~~In the case of continuous monitoring, supplemental or intermittent monitoring of the parameter should be implemented at intervals no less than one (1) hour until such time as the continuous monitor is back in operation.~~

Comment 6: Section D.1, descriptive Item (g) contains a typographical error. Replace P21 with P16.

Response 6: This description has been revised consistent with the changes outlined in the response to Comment 2.

Comment 7: Section D.1, descriptive Items (pp) and (qq) - Soybean oil has historically averaged 18% in the beans processed. The crush rate is 115 tons per hour. Therefore, the evaporator and condenser process rate should be corrected. The correct rate is 0.18 * 115: 20.7 tons per hour. Replace in both parts 17.9 with 20.7.

Response 7: These descriptions have been revised consistent with the changes outlined in the response to Comment 3.

Comment 8: Condition D.1.2, Item (e) - This part references specific facilities to which the NSPS (40 CFR Subpart DD) applies at this plant. This condition item should be deleted. The item lists the kaolin (clay) conveyor system and mixing screw (kaolin and soybean meal) conveyor, which are not regulated by this NSPS.

Condition D.1.2, Item (g) - This part references facilities to which the NSPS (40 CFR Subpart DD) applies at this plant. This permit condition item should be modified as follows to delete a facility which is not regulated by this NSPS:

(g) cleaning system cleaner, aspirators, hoppers, **and** scale~~, and breaker~~;

Response 8: Inclusion of the kaolin conveying system and mixing screw conveyor in the NSPS Subpart DD requirements was in error. Additionally, the OAM recognizes that the breaker, included with the cleaning system, should not be an affected facility because it is the first step of the extraction plant processing facilities. These processing facilities are not intended to be regulated under the NSPS Subpart DD, Standards of Performance for Grain Elevators. Condition D.1.2 has been revised as follows to incorporate these changes:

D.1.2 New Source Performance Standards(NSPS) Grain Elevators [326 IAC 12] [40 CFR Subpart DD 60.302(b)]
Pursuant to 40 CFR Subpart DD 60.302(b), gases discharged into the atmosphere from the:

(a) north truck only receiving pit; north house bin loading area elevator and conveyors; north storage/loadout area conveyors;

(b) receiving area P1 truck only receiving pit, belt conveyor system, aspirated receiving leg, drag conveyor and covered belt conveyor;

(c) receiving area P2 hopper bottom truck and rail receiving pits, drag conveyors and aspirated receiving legs;

(d) barge receiving area clamshell crane or bucket unloading, aspirated hopper, belt/mass flow conveyors, conveyor system and bucket elevators;

(e) ~~flow coating material kaolin conveyor system and mixing screw conveyor;~~

~~(f)~~ drag conveyors comprising two conveyance systems between the storage silos and elevator legs; elevator legs; conveyor between the elevator legs and magnet;

~~(g)~~**(f)** cleaning system cleaner, aspirators, hoppers, **and** scale~~, and breaker~~; and

~~(h)~~**(g)** L-Path drag conveyor; drag conveyor to the jet dryers;

shall not exceed particulate matter (PM) concentrations of 0.01 gr/dscf. Gases from these facilities shall not exhibit greater than 0 percent opacity.

Comment 9: Condition D.1.6 - This part lists process sources and their respective PM emission limits. A typographical error exists: The limit for Rail/Hopper Bed Truck Receiving (P2) should be 0.014 lb/ton bean unloaded.

Response 9: The limitation on the Rail/Hopper Bed Truck Receiving operation specified in the draft Condition D.1.6 was incorrect. The correct limit should be 0.014 lb/ton bean unloaded. The limited annual PTE specified in the "Potential to Emit of Modification After Issuance" table on Page 12 of the TSD will not change as a result of this revision. Condition D.1.6 shall be revised as follows to correct this error:

D.1.6 Particulate Matter Emission Rate Limitations
Pursuant to Consolidated Grain and Barge Company's request, the particulate matter (PM) emission rates shall be limited to the potential controlled emissions as reported below:

Process	PM Emission Rate
Truck Receiving and Conveyors (P1)	0.56 lb/hr
Rail/Hopper Bed Truck Receiving (P2)	~~0.013~~ **0.014** lb/ton bean unloaded
North Truck Receiving and Conveyors (P24)	0.43 lb/hr
Barge Grain Receiving (P16)	0.69 lb/hr
Annex Silo Loading (P2A)	0.003 lb/ton bean handled
Merchandising Silo Loading (P26)	0.009 lb/ton bean handled
North House Bin Loading	0.009 lb/ton bean handled
North House Storage Loadout	0.009 lb/ton bean handled
Soybean Cleaning (P4)	0.82 lb/hr
Soybean Heater (P21) and Soybean Cracking/Dehulling (P5)	12.40 lbs/hr
Soybean Expander (P23)	2.50 lb/hr
Soybean Flaking (P19)	0.39 lb/hr
DTDC Meal Drying (P10 & P11)	11.80 lb/hr
DTDC Meal Cooling (P12)	1.00 lb/hr
Meal Sizing (P9)	0.26 lb/hr
Kaolin Handling (P3)	0.10 lb/hr
Hull Grinding (P6)	0.03 lb/hr
Hull Storage and Handling (P7)	0.34 lb/hr
Hull Pellet Cooling (P8)	5.14 lb/hr
Hull Pellet Storage (P8)	0.17 lb/hr
Meal Storage & Loadout Bins (P20)	0.26 lb/hr

Truck Meal Loadout (P14)	0.69 lb/hr
Barge/Rail Meal Loadout (P15)	0.69 lb/hr

Compliance with these voluntary limits satisfies the requirements of 326 IAC 6-3-2 in Condition D.1.5 for these facilities.

Comment 10: Condition D.1.11, Item (d) - A misunderstanding exists concerning the control which results in a 40% reduction in the PM emissions. The control consists of a small, versus a large, receiving pit and the pit enclosure, which is a two-sided and roofed shed. The small receiving pit enables a choke to be created below the unloading vehicle within a matter of seconds after unloading is initiated. The shed minimizes the emissions during this short period of time by deflecting ambient winds from the pit area. There is no justification for enlarging the receiving shed such that the trucks and the strings of rail cars could be entirely within the shed. Revise this part to read as follows:

> The H.B. Truck and Rail receiving pits shall be limited to hopper bottom rail cars and trucks with choke unloading ~~and shall be enclosed during the unloading process~~. Guidelines shall be posted in this area which address this operational limitation.

Response 10: The intent of this requirement is to restrict these particular receiving operations to the specific type and circumstances of unloading which was presented by the Permittee as inherently limiting emissions. This condition is necessary to ensure that the basis of the potential to emit calculations is valid and that the operation of these receiving operations is consistent with the assumptions made in those calculations. The language will be revised as follows to clarify the intent of Item (d) of Condition D.1.11:

D.1.11(d) The H.B. Truck and Rail receiving pits shall be limited to hopper bottom rail cars and trucks with choke unloading**.** ~~and~~ **Unloading at these receiving pits** shall be **conducted inside a two-sided and roofed enclosure to minimize fugitive emissions** ~~enclosed during the unloading process~~. Guidelines shall be posted in this area which address ~~this~~ **these** operational limitation**s**.

Comment 11: Condition D.1.16 - This part implies an internal inspection of each baghouse on a quarterly basis. Since the majority of the baghouses operate as an integral part of the process, the shutdown of any one of the majority of the baghouses would require a plant shutdown. The plant, except for emergencies, operates with one annual shutdown. The daily visible emission observations of exhaust stacks and parametric monitoring (tubesheet pressure drops) are excellent indicators of baghouse performance. Internal inspections are duplicative of these activities and not warranted. Hexane (HAP) emissions are directly proportional to maintenance of the correct process parameters (material flow, temperatures, pressures, etc.). It is not possible to adhere to these parameters during the process of shutting down or starting up a soybean extraction plant. During these periods, hexane losses to the atmosphere increase. Creating process interruptions to inspect perfectly good equipment would result in an increase in HAP emissions! Revise this part as follows:

> An inspection shall be performed ~~each calendar quarter~~ **annually** of all bags controlling the...

Response 11: The requirement to take daily visible emissions notations is a way of monitoring compliance with 326 IAC 6-3-2 and 326 IAC 5-1. While this type of monitoring is

effective in noting significant changes in baghouse performance, small bag leaks may go undetected. Additionally, visible emission notations cannot catch a worn bag before it fails. To enhance these daily checks, baghouse inspections are in most cases necessary to insure continuous compliance. The OAM understands that some of the baghouses have an integral role in the extraction process and that requiring quarterly baghouse inspections for these particular baghouses would cause the process to be shut down more often than necessary. Due to the increased level of Hexane emissions during periods of shutdown and startup of the extraction process, the OAM has determined that annual baghouse inspections of the baghouses integral to the process would be acceptable in this case. Condition D.1.16 shall be revised as follows to clarify which baghouses will still require quarterly inspections and those that will be allowed to reduce those inspections to annual to avoid unnecessary HAP emissions:

D.1.16 Baghouse Inspections

(a) An inspection shall be performed each calender quarter of all bags controlling the North Truck Receiving, P1 Truck Receiving/Receiving Leg, Barge Receiving/Conveyors, Kaolin Receiving Bins, ~~Magnet, Cleaning System, Hull Grinders, Hull Storage Bins, Pellet Mill Hull Feed Hopper, Pellet Storage Bins, Meal Flakers, Meal Screeners, Meal Screening Hopper, Meal Grinders, Mixed Meal Elevator Leg,~~ Truck Loadout, Rail Loadout, and Barge Loadout operations when venting to the atmosphere. All defective bags shall be replaced.

(b) An inspection shall be performed at least annually of all bags controlling the Magnet, Cleaning System, Hull Grinders, Hull Storage Bins, Pellet Mill Hull Feed Hopper, Pellet Storage Bins, Meal Flakers, Meal Screeners, Meal Screening Hopper, Meal Grinders, and Mixed Meal Elevator Leg operations when venting to the atmosphere. All defective bags shall be replaced.

Comment 12: Condition [D.1.18] - This part implies an internal inspection of each cyclone on a quarterly basis. Since the vast majority of the cyclones operate as an integral part of the process, the shutdown of any one of the majority of the cyclones would require a plant shutdown. The plant, except for emergencies, operates with one annual shutdown. The daily visible emission observations of exhaust stacks are excellent indicators of cyclone performance. Internal inspections are duplicative of these activities and not warranted. Hexane (HAP) emissions are directly proportional to maintenance of the correct process parameters (material flow, temperatures, pressures, etc.). It is not possible to adhere to these parameters during the process of shutting down or starting up a soybean extraction plant. During these periods, hexane losses to the atmosphere increase. Creating process interruptions to inspect perfectly good equipment would result in an increase in HAP emissions!

Response 12: Further discussion with Consolidated Grain and Barge Company related to this comment has clarified that the cyclones are integral to the process operations and jacketed with insulation to prevent mudding of the unit and enhance process efficiency. Due to the insulated nature of the cyclones, it is not practical to perform an external visual inspection of the units while operating. Because the unit would have to be shut down to inspect it internally and this would result in an increased level of Hexane emissions from shutdown and startup of the extraction process, the OAM has determined that annual cyclone inspections would be acceptable in this case. Condition D.1.18 shall be revised as follows to account for this change:

D.1.18 Cyclone Inspections
An inspection shall be performed at least annually of all cyclones controlling the Cleaning System, Jet Dryers, CCD Dryers, CCC Coolers, Cracking and Dehulling, Hull Screening/Aspiration, Hull Pellet Cooler, DTDC Dryers, DTDC Cooler operations when venting to the atmosphere.

Comment 13: Condition D.1.17 - This and other parts reference Section B - Emergency Provisions. There is no such part in B. Possibly the provisions of C.11(d) should replace this reference:

Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of ~~the emergency provisions of this permit (Section B - Emergency Provisions)~~ **the provisions of 326 IAC 2-7-16 (Emergency Provisions) requiring prompt corrective action to mitigate emissions.**

Response 13: The reference to "Section B - Emergency Provisions" is in Items (a) and (b) of Condition D.1.17 (Broken or Failed Bag Detection) and Condition D.1.19 (Cyclone Failure Detection). The referenced condition is a Part 70 permit condition which outlines in detail the requirements of 326 IAC 2-7-16 (Emergency Provisions). Because the proposed significant source modification is not in and of itself a complete Part 70 permit, it does not contain the referenced condition. Since the referenced Emergency Provisions condition does not provide for any requirements beyond those covered in the rule, a reference directly to the rule can be used to correct the missing reference. Conditions D.1.17 and D.1.19 shall be revised as follows:

D.1.17 Broken or Failed Bag Detection
In the event that bag failure has been observed:

(a) The affected compartments will be shut down immediately until the failed units have been repaired or replaced. Within eight (8) hours of the determination of failure, response steps according to the timetable described in the Compliance Response Plan shall be initiated. For any failure with corresponding response steps and timetable not described in the Compliance Response Plan, response steps shall be devised within eight (8) hours of discovery of the failure and shall include a timetable for completion. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions ~~of this permit (Section B - Emergency Provisions).~~ **of 326 IAC 2-7-16 including timely notification, prompt corrective action to mitigate emissions, and specifically the requirements outlined in 326 IAC 2-7-16(g).**

(b) For single compartment baghouses, failed units and the associated process will be shut down immediately until the failed units have been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions ~~of this permit (Section B - Emergency Provisions).~~ **of 326 IAC 2-7-16 including timely notification, prompt corrective action to mitigate emissions, and specifically the requirements outlined in 326 IAC 2-7-16(g).**

D.1.19 Cyclone Failure Detection
In the event that cyclone failure has been observed:

Failed units and the associated process will be shut down immediately until the failed units have been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions ~~of this permit (Section B - Emergency Provisions).~~ **of 326 IAC 2-7-16 including timely notification, prompt corrective action to mitigate emissions, and specifically the requirements outlined in 326 IAC 2-7-16(g).**

Comment 14: Condition D.1.21, Item (b)(1)(A) - Baghouses are manufactured with fittings either side of the tubesheet (the sheet that separates the dirty from the clean side of the baghouse and from which is suspended the filter media). Therefore, the static that is measured is across the tubesheet, not across the inlet and outlet. As was incorporated in the Isolatek International Part 70 operating permit, revise this part as follows:

(A) Baghouse **total static pressure drop across the tubesheet** ~~inlet and outlet differential static pressure~~;

Condition D.1.21, Item (b)(1)(B) - The baghouse cleaning cycles and cleaning pressures are preset by the manufacturer. As long as these are not modified, there is no need for daily confirmation of the same. As was incorporated in the Isolatek International Part 70 operating permit, revise this part as follows:

(B) Cleaning cycle: frequency **(baghouses that have cleaning cycles preset by the manufacturer, the Permittee can document the cycle once, versus re-documenting a preset every day)** and differential pressure **(baghouses that have differential pressure preset by the manufacturer, the permittee can document the cycle once, versus re-documenting a preset every day)**.

Response 14: The recordkeeping requirements in Item (b)(1) of Condition D.1.21 have been revised to clarify where the pressure drop readings are expected to be measured and to account for manufacturer presets as follows:

(b)(1) Daily work shift records of the following operational parameters during normal operation when venting to the atmosphere:

(A) Baghouse **total static pressure drop across the tubesheet** ~~inlet and outlet differential static pressure~~;

(B) Cleaning cycle: frequency and differential pressure. **For baghouses that have cleaning cycles or differential pressure preset by the manufacturer, the Permittee can document the preset cycle or differential pressure once, versus re-documenting the preset every day, provided the preset cycle or differential pressure does not change.**

Comment 15: Condition D.1.21, Item (d)(2) - Condition D.1.10 specifies a minimum lower meal temperature of the Desolventizer section of the DTDC. As long as this temperature is maintained, no further action would be required. These two parts should be consistent. Revise this part to be as follows:

Records of the ~~daily airflow and VOC (hexane) concentration measured at the vents for the DTDC dryer cyclones and DTDC cooler cyclone~~ **daily meal laboratory VOC test if the lower meal temperature of the desolventizer is below 215 degrees F**.

Response 15: The intent of Condition D.1.21, Item (d)(2), is to require records appropriate to document compliance with the D.1.10(b) which requires laboratory tests to determine the hexane emission rate of the DTDC dryer and cooler cyclones when the lower meal temperature of the desolventizer is below 215 degrees F. This is necessary because temperatures below 215 degrees F may invalidate the compliance test results used to determine emissions for temperatures above 215 degrees F. Item (d) of Condition D.1.21 shall be revised as follows to require records consistent with the limiting condition:

D.1.21 (d) To document compliance with Conditions D.1.10 and D.1.20, the Permittee shall maintain the following:

(1) Records of the daily airflow and VOC (hexane) concentration measured at the vent for the mineral oil absorber.

(2) Records of the **days the lower meal temperature of the desolventizer is below 215 degrees F and meal laboratory VOC test results for those days** ~~daily airflow and VOC (hexane) concentration measured at the vents for the DTDC dryer cyclones and DTDC cooler cyclone~~.

(3) Electronic data management system (EDMS) records for the inlet vacuum pressure of the vapor stream to the absorber, flow rate of the mineral oil through the absorber, the mineral oil temperature entering the absorber and soybean oil temperature entering the stripping column. Records of the times and reasons of the breakdown of the EDMS and efforts made to correct the problem should accompany any supplemental or intermittent monitoring records occurring as a result of EDMS failure.

Comment 16: Condition D.1.22 (the condition following D.1.21) contains a typographical error. Replace D.1.16 with D.1.22.

Response 16: The condition following D.1.21 in the draft permit was incorrectly numbered D.1.16. The condition should be D.1.22. The permit has been revised to correct this error.

Comment 17: Condition D.2.5 - The plant is only permitted to combust natural gas in the facility boilers. This part requires quarterly reporting that natural gas was the only fuel utilized. Not only is a condition requiring the submittal of a report certifying that natural gas was fired in the boiler at all time a waste of paper, but also cannot truthfully be made of any boiler requiring Pressure Vessel Certification in the state of Indiana. First, the report seems to be a carryover from a permit that enabled more than one fuel to be utilized. Second, the form does not conform to the condition. It requires alternate fuel use certification. Third, all boilers must be shutdown once per year for internal inspection. Therefore, certification within the “at all times” verbiage would violate pressure vessel code requirements. We understand that an alternate language is to accept and document weekly visible observations of the boiler stack emissions. Reluctantly, we request, in lieu of deleting this part, that it be revised to read as follows:

The Permittee shall document weekly visible emission notations of the boiler stack exhausts during normal daylight operations when in operation. A trained employee shall record whether emissions are normal or abnormal ~~The Permittee shall certify, on the form provided, that natural gas was fired in the boiler at all times during each quarter~~.

Response 17: Further discussion with Consolidated Grain and Barge Company has clarified that the required visible emission notations would be once per shift rather than weekly. Consolidated Grain and Barge Company maintained their request to do visible emission notations rather than submit a quarterly natural gas certification. Therefore, Condition D.2.5 (Reporting Requirements) has been removed from the permit and a new condition D.2.4 (Visible Emission Notations) has been added as follows:

~~D.2.5 Reporting Requirements~~
~~The Permittee shall certify, on the form provided, that natural gas was fired in the boiler at all times during each quarter.~~

D.2.4 Visible Emissions Notations

(a) Visible emission notations of the boiler stack exhausts shall be performed once per shift during normal daylight operations when exhausting to the atmosphere. A trained employee shall record whether emissions are normal or abnormal.

(b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.

(c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.

(d) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.

(e) The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when an abnormal emission is observed.

The remaining condition (D.2.4) in Section D.2 has been renumbered D.2.5 as appropriate and the following additional recordkeeping requirements have been added to that condition to document the visible emission notations required:

D.2.5 Record Keeping Requirements [326 IAC 12] [40 CFR 60.48c]

(a) Pursuant to 326 IAC 12 and 40 CFR 60.48c (g), the owner or operator shall record and maintain monthly records of the amount of natural gas combusted in each of the boilers.

(b) To document compliance with Condition D.2.4, the Permittee shall maintain records of visible emission notations of the boiler stack exhausts once per shift.

(c) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

Additionally, the natural gas certification form has been removed from the permit and the Table of Contents revised as a result of these changes.

On October 13, 2000, the IDEM-OAM determined that the following additional revisions to the draft permit were necessary (new language is bolded for emphasis):

1. The History portion of the Technically Support Document incorrectly refers to the original construction approval number (stated as CP 129-5714-00035) due to a typographical error in another construction permit (CP 129-7488-00035) which superseded that original permit. This error was accidently carried over into the TSD of this source modification. References to the original construction permit should be to permit number CP 129-5718-00035; therefore, the first paragraph of the History (Page 2 of the TSD) should read as follows:

   Consolidated Grain and Barge Company was issued Construction Permit No. 129-571**8**-00035 for the soybean extraction plant on October 30, 1996. On December 12, 1996, Consolidated submitted an application to include receiving capabilities by barge as well as additional equipment that increases the maximum capacity of the existing permitted facilities. Construction Permit No. 129-7488-00035 addressed the changes and superseded Construction Permit No. 129-571**8**-00035 on April 23, 1997. On October 24, 1997, Administrative Amendment No. 129-9020 was issued clarifying some equipment descriptions in the permit. On June 16, 1998, Consolidated submitted an application (No. 129-9854) to construct a grain dryer at the extraction plant but subsequently withdrew the request on August 30, 1999.

2. The following equipment descriptions in Section A.2 and D.1 have been revised to clarify maximum capacities of the emission units and, in one case, to correct a typographical error:

   (b)(2) three (3) enclosed conveyors that transfer the soybean from the north receiving area to the soybean storage areas at a **combined** maximum rate of 720,000 pounds per hour;

   (c)(2) two (2) enclosed conveyors that transfer the soybean from the storage area to the loadout bin at a **combined** maximum rate of 720,000 pounds per hour;

   (g)(3) one (1) enclosed bucket elevator~~s~~, and

   (q) one (1) cleaning system **with a maximum capacity of 115 tons per hour** consisting of**:** one **(1)** cleaner, two (2) aspirators, two (2) hoppers, and one (1) scale~~, with a maximum capacity of 115 tons per hour,~~ that utilize both an oil application and one (1) baghouse (C4) that exhausts to Stack 4 to control PM emissions and one (1) aspirator and one (1) breaker that utilize one (1) cyclone (C5E) that exhaust to Stack 5 to control PM;

3. The emission limitation for the DTDC meal drying operations (meal dryer sections 1 and 2 exhausting at Stacks 10 and 11, respectively) in Condition D.1.6 has been revised to specify a unique limit for each exhaust point. The condition's limit table shall be revised as follows:

D.1.6 Particulate Matter Emission Rate Limitations

Pursuant to Consolidated Grain and Barge Company's request, the particulate matter (PM) emission rates shall be limited to the potential controlled emissions as reported below:

Process	PM Emission Rate
Truck Receiving and Conveyors (P1)	0.56 lb/hr
Rail/Hopper Bed Truck Receiving (P2)	0.014 lb/ton bean unloaded
North Truck Receiving and Conveyors (P24)	0.43 lb/hr
Barge Grain Receiving (P16)	0.69 lb/hr
Annex Silo Loading (P2A)	0.003 lb/ton bean handled
Merchandising Silo Loading (P26)	0.009 lb/ton bean handled
North House Bin Loading	0.009 lb/ton bean handled
North House Storage Loadout	0.009 lb/ton bean handled
Soybean Cleaning (P4)	0.82 lb/hr
Soybean Heater (P21) and Soybean Cracking/Dehulling (P5)	12.40 lbs/hr
Soybean Expander (P23)	2.50 lb/hr
Soybean Flaking (P19)	0.39 lb/hr
DTDC Meal Drying **Section 1** (P10 ~~& P11~~)	~~11.80~~ **10.00** lb/hr
DTDC Meal Drying Section 2 (P11)	**1.80 lb/hr**
DTDC Meal Cooling (P12)	1.00 lb/hr
Meal Sizing (P9)	0.26 lb/hr
Kaolin Handling (P3)	0.10 lb/hr
Hull Grinding (P6)	0.03 lb/hr
Hull Storage and Handling (P7)	0.34 lb/hr
Hull Pellet Cooling (P8)	5.14 lb/hr
Hull Pellet Storage (P8)	0.17 lb/hr
Meal Storage & Loadout Bins (P20)	0.26 lb/hr
Truck Meal Loadout (P14)	0.69 lb/hr
Barge/Rail Meal Loadout (P15)	0.69 lb/hr

Compliance with these voluntary limits satisfies the requirements of 326 IAC 6-3-2 in Condition D.1.5 for these facilities.

4. The Best Available Control Technology (BACT) limiting table in Condition D.1.6 has been changed to clarify that the listed emission units are not the only process points which are controlled by the mineral oil absorber system. The intent of the "Facility" column of the table is to list the main emission units controlled by the mineral oil absorber system and is not meant to be a comprehensive list. The condition has been revised as follows:

D.1.7 Best Available Control Technology (BACT) [326 IAC 8-1-6]
Pursuant to CP-129-7488-00035 (issued on July 17, 1995), as revised in this source modification (129-12235-00035), the VOC (hexane) emissions from the soybean oil extractor plant shall comply with the Best Available Control Technology (BACT) for the oil extractor, meal dryers, and meal cooler. The company shall assure compliance with BACT by performing monitoring and recordkeeping such that the following limits are not exceeded:

(a) the hexane usage shall be limited to 0.225 gallons per ton of soybean crushed, and

(b) the total amount of soybeans processed at the plant shall meet the limit established in Condition D.1.4.

The limits established correspond to the following BACT determinations:

Facility	BACT	VOC (Hexane) Emission Limit including upset conditions
The extraction and distillation process including the oil extractor, desolventizer**,** **evaporators**, solvent separator and vent system	Mineral Oil Absorber System	0.084 lb/ton soybean processed
Meal dryers	None	0.30 lb/ton soybean processed
Meal cooler	None	0.051 lb/ton soybean processed

The company will minimize the hexane emissions by training the operators and supervisors. At the end of each calendar year, the company shall submit to the IDEM a progress report of efforts taken to reduce hexane emissions from the plant.

Indiana Department of Environmental Management
Office of Air Management

Technical Support Document (TSD) for a Part 70 Significant Source Modification.

Source Background and Description

Source Name:	**Consolidated Grain and Barge Company**
Source Location:	**Bluff Road, Mount Vernon, Indiana**
County:	**Posey**
SIC Code:	**2057**
Operation Permit No.:	**T 129-10111-00035**
Operation Permit Issuance Date:	**(review pending)**
Significant Source Modification No.:	**129-12235-00035**
Permit Reviewer:	**Janusz Johnson**

The Office of Air Management (OAM) has reviewed a modification application from Consolidated Grain and Barge Company relating to the construction of new facilities and an increase in the maximum annual processing capacity for the soybean oil extraction plant from 882,877 tons of soybeans per year to 940,240 tons of soybeans per year. The modified plant will have an increased receiving capacity of 2,040 tons of soybeans per hour but the facilities are bottlenecked by the new maximum processing capacity of 940,240 tons of soybeans per year.

The following new facilities have been proposed in addition to the processing capacity increase requested:

(a) one (1) truck only soybean north receiving area (P24) with a maximum throughput capacity of 360 tons per hour consisting of:

(1) one (1) truck only receiving pit that controls PM emissions with one (1) baghouse (C24) that exhausts to Stack 24;

(b) one (1) north house bin loading area (P27) with a maximum throughput capacity of 360 tons per hour loading consisting of:

(1) one (1) totally enclosed aspirated elevator leg that transfers soybeans to enclosed conveyors at a maximum rate of 720,000 per hour;

(2) three (3) enclosed conveyors that transfer the soybean from the north receiving area to the soybean storage areas at a maximum rate of 720,000 pounds per hour;

(c) one (1) north storage/loadout area (P25) with a maximum throughput capacity of 360 tons per hour loading/unloading consisting of:

(1) two (2) steel storage tanks with a maximum capacity of 21,000 tons (700,000 bushels), each, that utilize oil application to control PM emissions;

(2) two (2) enclosed conveyors that transfer the soybean from the storage area to the loadout bin at a maximum rate of 720,000 pounds per hour;

(d) one (1) soybean expander (P23) with a maximum capacity of 50 tons per hour that controls PM emissions with one (1) cyclone (C23) that exhausts to Stack 23.

History

Consolidated Grain and Barge Company was issued Construction Permit No. 129-5714-00035 for the soybean extraction plant on October 30, 1996. On December 12, 1996, Consolidated submitted an application to include receiving capabilities by barge as well as additional equipment that increases the maximum capacity of the existing permitted facilities. Construction Permit No. 129-7488-00035 addressed the changes and superseded Construction Permit No. 129-5714-00035 on April 23, 1997. On October 24, 1997, Administrative Amendment No. 129-9020 was issued clarifying some equipment descriptions in the permit. On June 16, 1998, Consolidated submitted an application (No. 129-9854) to construct a grain dryer at the extraction plant but subsequently withdrew the request on August 30, 1999.

Additionally, Consolidated Grain and Barge Company submitted two (2) administrative amendment applications (Nos. 129-10046 and 129-10099) on August 19 and September 3, 1998, respectively. These amendment requests have been incorporated into this review. The changes requested and made as a part of this Source Modification are as follows:

Amendment request no. 129-10046
To enable representative testing of the rail meal loadout filter, individual process/filter emission limits shall be established for C14, C15, C16 and C20 which total 2.32 pounds per hour. The requested individual limits are 0.686, 0.686, 0.686 and 0.257 pounds per hour, respectively. The existing limits specified in Condition No. 15 of CP 129-7488-00035 shall be revised accordingly (see revised condition below).

Amendment request no. 129-10099
The existing permit (129-7488-00035) addressed two receiving processes: one for Trucks Only and one for Truck and Rail receiving. One filter was proposed to aspirate each process (as stated in the permit). The actual installation incorporated only one filter used to control PM emissions of the Truck Only process and all grain receiving conveyance components. Consolidated proposed to limit all receiving at the Truck and Rail receiving pit (the uncontrolled pit) to hopper-bottom trucks and rail cars. The choke unloading of these types of vehicles will control 95% of the receiving hopper emissions, a level of control close to the originally proposed second filter. The facility descriptions in Items 1 and 2 (“Permitted Emission Units”, below) have been revised to account for these changes.

Clarification was requested on the Soybean Storage Handling Process emissions limits to accurately reflect the potential to emit of the system. Further review indicates that the appropriate limit for this process step should be 0.044 pounds per hour rather than 3.2 pounds per hour. This change is based on emission point information submitted by Consolidated.

Due to delayed construction of the Barge Receiving system, the Barge Loadout system is being controlled by the Rail Loadout baghouse (C15) rather than the proposed Barge Receiving baghouse (C16). The facility description in Item 68 (“Permitted Emission Units”, below) has been revised to account for this change.

The recycle point for the hulls and aspirated fines particulate matter (PM) collected by baghouse (C4) was changed to include PM from the auger of filter C4. The facility description in Item 22 (“Permitted Emission Units”, below) has been revised to account for this change and clarify that aspirated fines are part of what is recycled.

The bean heater exhaust point was separated from the C5E cyclone and C4 baghouse train due to an inadequate amount of aspiration from the heater and too much moisture being contributed to the baghouse. The system was revised to enable direct venting of the heater to the atmosphere via a vent duct designated P21. The facility description in Item 14 (“Permitted Emission Units”, below) has been revised to account for this change. This new process point will still be limited under the Soybean Drying/Cracking/Dehulling process emission limit.

Both Amendment requests nos. 129-10046 and 129-10099
The existing Condition No. 15 of CP 129-7488-00035 would be revised as follows to clarify the applicable emission limitations for the facilities revised as a result of the discussed amendment changes as follows (bold emphasis added to new language):

15. That pursuant to Consolidated Grain and Barge Company's request, the particulate matter (PM) emission rates shall be limited to the potential controlled emissions as reported below:

Process	PM Emission Rate (lbs/hr)
Truck Only Receiving Process **including the receiving pits and all grain receiving conveyors of the Truck Only and Truck and Rail Receiving processes** (C1 ~~and C2~~).	~~1.11~~ **0.56**
Soybean Storage Handling Process **-Silos (Oil Addition system)** (C1 and C2)	~~3.3~~ **0.044**
Soybean Cleaning Process (C4)	0.814
Soybean Drying/Cracking/Dehulling Process (C5A, C5B, C5C, C5D, C5E, C5F, C5G, ~~and~~ C5H **and Stack 21**)	12.4
Soybean Flaking Process (C19A, C19B, and C19C)	0.39
DTDC Meal Drying Process (C10 and C11)	11.8
DTDC Meal Cooling Process (C12)	12.5
Meal Sizing Process (C9)	0.26
Kaolin Handling Process (C3)	0.103
~~Barge Receiving/Meal Storage and Loadout Process (C14, C15, C16, and C20)~~	~~2.32~~
Meal Loadout Truck (C14)	**0.686**
Rail and Barge Meal Loadout (C15)	**0.686**
Barge Receiving (C16)	**0.686**
Meal Storage Out (C20)	**0.257**
Hull Grinding Process (C6)	0.032
Hull Storage and Handling Process (C7 and C7A)	0.342
Hull Pellet Cooling Process (C8)	5.1
Hull Pellet Storage Handling Process (C8A)	0.171

((Note: Condition 15 will be renumbered and further revised as appropriate for this Source Modification review.))

Permitted Emission Units

The following existing equipment descriptions (based on CP-129-7488 as amended by No. 129-9020) will be revised as indicated (bold emphasis added to new language) to reflect the proposed processing capacity increases and amendment changes discussed in the "History", above:

1. one (1) truck only soybean receiving area (P1) with a maximum throughput capacity of ~~540~~ **600** tons per hour consisting of:

   (a) one (1) truck only receiving pit that controls PM emissions with one (1) baghouse (C1) that exhausts to Stack 1,
   (b) one (1) totally enclosed belt conveyor system (or equivalent) that utilizes an oil application to control PM emissions,
   (c) one (1) aspirated soybean receiving leg that utilizes an oil application and one (1) baghouse (C1) that exhausts to Stack 1 to control PM emissions,
   (d) one (1) drag conveyor that transfers the soybean from the receiving leg to the soybean covered belt conveyor, and
   (e) one (1) covered belt conveyor that loads the soybean storage silos;

2. one (1) truck and rail soybean and hull receiving area (P2) with a maximum throughput capacity of 540 tons per hour consisting of:

   (a) two (2) **H.B.** truck and rail receiving pits that control PM emissions ~~with one (1) baghouse (C2) that exhausts to Stack 2~~ **by restricting vehicles unloading grain at these stations to hopper-bottom rail cars and trucks with choke unloading applications**,
   (b) one (1) enclosed drag conveyor system (or equivalent) that utilizes an oil application to control PM emissions,
   (c) two (2) aspirated soybean and hull receiving legs that utilize an oil application and one (1) baghouse (~~C2~~ **C1**) that exhausts to Stack ~~2~~ **1** to control PM emissions,
   (d) one (1) enclosed drag conveyor that transfers the soybean at a maximum rate of 540 tons per hour from the receiving leg to the soybean covered belt conveyor that loads the soybean silos and the hull at a maximum rate of 170 tons per hour from the receiving leg to the hull covered belt conveyor that loads the hull silos;

3. one (1) barge soybean receiving area (P21) with a maximum throughput capacity of 540 tons per hour consisting of:

   (a) one (1) clamshell crane or bucket unloading to one (1) aspirated hopper unloading to one (1) enclosed belt/mass flow conveyor that controls PM emissions with one (1) baghouse (C16) that exhausts to Stack 16,
   (b) one (1) enclosed conveyor system that utilizes an oil application to control PM emissions,
   (c) one (1) enclosed bucket elevators, and
   (d) one (1) enclosed belt/mass flow conveyor that discharges to the truck and rail receiving scale;

4. twelve (12) concrete soybean silos, with a maximum storage capacity of 2,191.6 tons (73,053 bushels) each, that utilize an oil application to control PM emissions;

5. four (4) concrete soybean storage silos with a maximum capacity of 19,375 bushels each, that utilize an oil application to control PM emissions;

6. two (2) concrete soybean storage silos, with a maximum capacity of 18,801 bushels each, that utilize an oil application to control PM emissions;
7. one (1) flow coating material kaolin receiving bin that controls PM emissions with one (1) baghouse (C3) that exhausts to Stack 3;

8. one (1) flow coating material enclosed conveyor system that transfers kaolin to the enclosed mixing screw conveyor at a maximum rate of ~~0.366~~ **0.417** tons per hour;

9. three (3) totally enclosed drag conveyors (or equivalent) comprising two conveyance systems located below the storage silos that transfer the soybeans from the silos to the elevator legs at a maximum rate of ~~101~~ **115** tons per hour per system. Only one system operates at any given time and the systems utilize an oil application to control PM emissions;

10. two (2) soybean elevator legs that transfer the soybeans from the drag conveyor to the cleaner at a maximum rate of ~~101~~ **115** tons per hour each, and utilize an oil application to control PM emissions;

11. one (1) totally enclosed conveyor that transfers the soybeans from the elevator legs to the magnet at a maximum rate of ~~101~~ **115** tons per hour;

12. one (1) magnet, with a maximum capacity of ~~101~~ **115** tons per hour, that utilizes both an oil application and one (1) baghouse (C4) that exhausts to Stack 4 to control PM emissions;

13. one (1) cleaning system consisting of one cleaner, two (2) aspirators, two (2) hoppers, and one (1) scale, with a maximum capacity of ~~101~~ **115** tons per hour, that utilize both an oil application and one (1) baghouse (C4) that exhausts to Stack 4 to control PM emissions and one (1) aspirator and one (1) breaker that utilize one (1) cyclone (C5E) that exhaust to Stack 5 to control PM;

14. one (1) soybean heater, with a maximum capacity of ~~101~~ **115** tons per hour, ~~that controls PM emissions with one (1) cyclone (C5E)~~ that exhausts to Stack ~~5~~ **21** ~~and with one (1) baghouse (C4) that exhausts to Stack 4~~;

15. one (1) L-Path totally enclosed drag conveyor (or equivalent) that transfers the cleaned soybeans at a maximum rate of ~~101~~ **115** tons per hour;

16. one (1) enclosed drag conveyor (or equivalent) that transfers soybeans to the jet dryers at a maximum rate of ~~101~~ **115** tons per hour;

17. three (3) jet dryers, with a maximum capacity of 42 tons per hour each, that controls PM emissions with three (3) cyclones (C5A, C5B, and C5F) that exhaust to Stack 5;

18. three (3) primary CCD dryers, with a combined maximum capacity of ~~101~~ **115** tons per hour, that controls PM emissions with two (2) cyclones (C5C and C5G) that exhaust to Stack 5;

19. three (3) secondary CCC coolers, with a combined maximum capacity of ~~101~~ **115** tons per hour, that controls PM emissions with two (2) cyclones (C5D and C5H) that exhaust to Stack 5;

20. six (6) cracking and dehulling rolls, with a combined maximum capacity of ~~101~~ **115** tons per hour, that transfer the hulls through four (4) cyclones (C5C, C5D, C5G, and C5H) to an enclosed conveyor;

21. one (1) totally enclosed cracking and dehulling drag conveyor (or equivalent) that transfers hulls from cyclones C5A and, and C5B to the hull grinding system at a maximum rate of ~~7~~ **8.05** tons per hour;

22. one (1) totally enclosed cracking and dehulling drag conveyor (or equivalent) that transfers hulls **and aspirated fines** from cyclones C5C, C5D, C5F, C5G, ~~and~~ C5H**, and the totally enclosed auger (or equivalent) of filter C4** to the hull screener and aspirator at a maximum rate of ~~7~~ **8.05** tons per hour;

23. one (1) hull screener and aspirator, with a maximum capacity of ~~7~~ **8.05** tons per hour, that controls PM emissions with one (1) cyclone (C5E) that exhausts to Stack 5;

24. one (1) totally enclosed drag conveyor (or equivalent) that transfers hulls from the hull screener to the hull grinders at a maximum rate of ~~7~~ **8.05** tons per hour;

25. two (2) hull grinders, with a maximum system capacity of ~~7~~ **8.05** tons per hour, that transfers the ground hulls to one (1) baghouse (C6) that exhausts to Stack 6;

26. hull storage bins, with a maximum capacity of 39,000 cubic feet, that controls PM emissions with one (1) baghouse (C7) that exhausts to Stack 7;

27. one (1) totally enclosed drag conveyor (or equivalent) that transfers hulls to the hull hopper at a maximum rate of ~~10~~ **15** tons per hour;

28. one (1) hull hopper that feeds to the pellet mill at a maximum rate of 15 tons per hour that controls PM emissions with one (1) baghouse (C7A) that exhausts to Stack 7A;

29. one (1) hull pellet mill with a maximum capacity of 15 tons per hour;

30. one (1) hull pellet cooler, with a maximum capacity of 15 tons per hour, that controls PM emissions with one (1) cyclone (C8) that exhausts to Stack 8;

31. pellet storage bins with a maximum capacity of 70,000 cubic feet, that controls PM emissions with one (1) baghouse (C8A) that exhausts to Stack 8A;

32. one (1) totally enclosed drag conveyor (or equivalent) that transfers beans from the cracking and dehulling conveyors to the flakers at a maximum rate of ~~92~~ **104.9** tons per hour;

33. nine (9) flakers, with a combined maximum capacity of ~~92~~ **104.9** tons per hour, that controls PM emissions with three (3) baghouses (C19A, C19B, and C19C) that exhaust to Stack 19;

34. one (1) totally enclosed drag conveyor (or equivalent) that transfers beans from the flakers to the feed screw conveyor at a maximum rate of ~~92~~ **104.9** tons per hour;

35. one (1) feed screw conveyor that transfers beans to the extractor at a maximum rate of ~~92~~ **104.9** tons per hour;

36. one (1) soybean oil extractor, with a maximum capacity of ~~92~~ **104.9** tons of soybean flakes per hour and ~~92~~ **104.9** tons of hexane per hour, that controls hexane (VOC) emissions with one (1) mineral oil absorber system (C13) that exhausts to Stack 13;

37. one (1) desolventizer unit, with a maximum capacity of ~~83.2~~ **86.8** tons of spent soybean flakes per hour, that exhausts hexane emissions through one (1) mineral oil absorber system (C13) to Stack 13;

38. a set of evaporators, with a maximum capacity of ~~15.8~~ **17.9** tons of soybean oil per hour, that controls hexane emissions with one (1) mineral oil absorber system (C13) that exhaust to Stack 13;

39. a set of condensers and water separator to separate hexane and water, with a maximum capacity of ~~15.8~~ **17.9** tons of soybean oil per hour, that controls hexane emissions with one (1) mineral oil absorber system (C13) that exhaust to Stack 13;

40. one (1) totally enclosed drag conveyor (or equivalent) that transfers flakes and hexane to the desolventizer at a maximum rate of ~~76.1~~ **86.8** tons per hour and ~~33.3~~ **34.5** tons per hour, respectively;

41. one (1) DTDC meal dryer section 1, with a maximum drying capacity of ~~73.1~~ **83.4** tons of meal per hour, that controls PM emissions with one (1) cyclone (C10) that exhausts to Stack 10;

42. one (1) DTDC meal dryer section 2, with a maximum drying capacity of ~~73.1~~ **83.4** tons of meal per hour, that controls PM emissions with one (1) cyclone (C11) that exhausts to Stack 11;

43. one (1) DTDC meal cooler section, with a maximum cooling capacity of ~~73.1~~ **83.4** tons of meal per hour, that transfers the meal to one (1) cyclone (C12) to Stack 12;

44. one (1) DTDC enclosed screw conveyor (or equivalent) that transfers meal from the DTDC meal cooler to the meal surge conveyor bin at a maximum capacity of ~~73.1~~ **83.4** tons per hour;

45. one (1) totally enclosed surge bin conveyor that transfers the meal to the surge bins at a maximum rate of ~~73.1~~ **83.4** tons per hour;

46. two (2) meal surge bins, with a maximum storage capacity of 19,500 cubic feet, that feed to the screeners or the recycle leg;

47. one (1) elevator leg that transfers the meal to the sizing process at a maximum rate of ~~73.1~~ **83.4** tons per hour;

48. five (5) meal screeners, with a maximum capacity of ~~73.1~~ **83.4** tons of meal per hour, that controls PM emissions with one (1) baghouse (C9) that exhausts to Stack 9;

49. one (1) meal screening hopper that controls PM emissions with one (1) baghouse (C9) that exhausts to Stack 9;

50. two (2) meal grinders, with a combined maximum capacity of ~~73.1~~ **83.4** tons per year, that controls PM emissions with one (1) baghouse (C9) that exhausts to Stack 9;

51. two (2) meal grinding hoppers and two (2) aspirators that controls PM emissions with one (1) baghouse (C9) that exhausts to Stack 9;

52. one (1) totally enclosed drag conveyor (or equivalent) that transfers meal from the grinding hoppers to the meal mixing screw conveyor at a maximum rate of ~~73.1~~ **83.4** tons per hour;

53. one (1) enclosed meal mixing screw conveyor (or equivalent) that transfers meal to the mixed meal elevator leg at a maximum rate of ~~73.5~~ **83.8** tons per hour;

54. one (1) mixed meal elevator leg, with a maximum capacity of ~~73.5~~ **83.8** tons per hour, that controls PM emissions with one (1) baghouse (C9) that exhausts to Stack 9;

55. one (1) totally enclosed drag conveyor (or equivalent) that transfers meal from the mixed meal elevator leg to the meal storage tanks, load out bins and bulk weigh system at a maximum rate of ~~73.5~~ **83.8** tons per hour;

56. meal storage tanks (capacity 292,000 cubic feet) and loadout bins (capacity 58,000 cubic feet), with a combined maximum storage capacity of 350,000 cubic feet, that controls PM emissions with one (1) baghouse (C20) that exhausts to Stack 20;

57. one (1) totally enclosed drag conveyor (or equivalent) that transfers soybean meal from the meal storage tanks to the meal elevator leg at a maximum rate of ~~373~~ **300** tons per hour;

58. one (1) meal elevator leg that operates at a maximum capacity of ~~373~~ **300** tons per hour and controls PM emissions with one (1) baghouse (C20) that exhausts to Stack 20;

59. one (1) truck loadout scalper that operates at a maximum capacity of ~~373~~ **383.3** tons per hour;

60. two (2) totally enclosed drag conveyors (or equivalent) that transfer meal from the meal loadout bins to the truck at a maximum rate of ~~373~~ **383.3** tons per hour each;

61. one (1) truck loadout chute that operates at a maximum capacity of ~~373~~ **383.3** tons per hour and controls PM emissions with one (1) baghouse (C14) that exhausts to Stack 14;

62. one (1) rail and barge loadout scalper that operates at a maximum capacity of ~~373~~ **383.3** tons per hour;

63. one (1) rail and barge bulk weigh system consisting of one (1) upper garner, one (1) weigh hopper, and one (1) lower surge that operates at a maximum capacity of ~~373~~ **383.3** tons per hour;

64. one (1) totally enclosed drag conveyors (or equivalent) that transfer meal from the lower surge to the rail at a maximum rate of ~~373~~ **383.3** tons per hour;

65. two (2) rail loadout systems that operates at a maximum total capacity of ~~373~~ **383.3** tons per hour, based on only one system operating at a time, and control PM emissions with one (1) baghouse (C15) that exhausts to Stack 15;

66. one (1) reversible enclosed conveyor system that has the ability to receive soybeans from the barge to the truck and rail receiving leg at a maximum rate of 540 tons per hour or transfer soybean meal from the lower surge to the barge loadout system at a maximum rate of ~~373~~ **383.3** tons;

67. one (1) barge loadout system that operates at a maximum capacity of ~~373~~ **383.3** tons per hour and controls PM emissions with one (1) baghouse (~~C16~~ **C15**) that exhausts to Stack ~~16~~ **15**;

68. three (3) 33.7 million (MM)Btu per hour natural gas fired boilers that exhaust to Stacks 17, 18, and 18A;

69. two (2) fixed roof hexane storage tanks with a maximum storage capacity of 14,000 gallons each;

70. one (1) fixed roof hexane work tank with a maximum storage capacity of 8,000 gallons;

71. four (4) fixed roof soybean oil storage tanks with a maximum storage capacity of 932 cubic meters each;

72. three (3) fixed roof soybean oil storage day tanks with a maximum storage capacity of 114 cubic meters each; and

73. one (1) fixed roof dust suppression soybean/mineral oil storage tank with a maximum storage capacity of 1,000 gallons.

Source Definition

Consolidated Grain and Barge Company has a merchandising house located near the soybean oil extraction plant. The merchandising house and soybean oil extraction plant are considered separate sources is based on the following:

(a) The two sources have different Standard Industrial Classification (SIC) codes. The SIC code for the soybean extraction plant is 2057, and the SIC code for the merchandising house is 5153.

(b) Less than fifty percent (50%) of the soybeans processed at the extraction plant are stored at the merchandising house storage area for any length of time.

Note: Although considered separate sources, during the review of the grain dryer application (No. 129-9854, withdrawn by Consolidated on August 30, 1999) , it was determined based on guidance from U.S. EPA Region 5 (a letter dated May 27, 1999, from George Czerniak) that a portion of the storage area at the nearby Merchandising House should be associated with the soybean oil extraction plant for the purpose of determining applicability of the New Source Performance Standard (NSPS) Subpart DD. This issue is further discussed in the "Federal Rules" section of this TSD.

Enforcement Issue

There are no enforcement actions pending.

Stack Summary

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (^{0}F)
1	*Truck Only Receiving Area*	*45*	*2.0*	*13,000*	*70*
2	*Truck/Rail Receiving Area*	*45*	*2.0*	*13,000*	*70*
3	*Kaolin Receiving Area*	*125*	*0.66*	*2,400*	*70*
4	*Prep Cleaning*	*85*	*0.75*	*19,000*	*70*
5	*Hot Dehulling*	*110*	*5.0*	*61,000*	*148*
6	*Hull Grinding*	*45*	*1.16*	*750*	*70*
7	*Hull Storage Bins*	*145*	*1.0*	*4,000*	*70*
7A	*Hull hopper to Pellet Mill*	*40*	*0.8*	*4,000*	*70*
8	*Hull Pellet Cooling*	*45*	*1.83*	*12,000*	*145*
8A	*Hull Pellet Storage Bins*	*40*	*0.8*	*4,000*	*70*
9	*Meal Sizing*	*45*	*1.33*	*6,000*	*70*
10	*DTDC Dryer No. 1*	*75*	*1.83*	*15,600*	*172*
11	*DTDC Dryer No. 2*	*25*	*1.83*	*11,100*	*137*
12	*DTDC Cooler*	*75*	*1.83*	*9,500*	*105*
13	*Mineral Oil Absorber Vent*	*80*	*0.25*	*124*	*85*
14	*Meal Loadout Truck*	*45*	*2.16*	*16,000*	*70*
15	*Meal Loadout Rail*	*45*	*2.5*	*16,000*	*70*
16	*Soyean Receiving/Meal Loadout Barge*	*15*	*2.0*	*16,000*	*70*
17	*Boiler No. 1*	*60*	*2.0*	*9,600*	*310*
18	*Boiler No. 2*	*60*	*2.0*	*9,600*	*310*
18A	*Boiler No. 3*	*60*	*2.0*	*9,600*	*310*
19	*Meal Flaking*	*45*	*1.0*	*9,000*	*137*
20	*Meal Storage/Loadout Bins*	*45*	*1.0*	*6,000*	*70*
21	*Soybean Heater*	*25*	*1.29*	*3,321*	*133*
23	Soybean Expander	45	2	22,000	175

24	North Truck Receiving Area	45	2	16,000	ambient
25	North Storage/Loadout Area	15	8.6	132,000	ambient
26	*Merchandizing Silo Loading*	*100*	*4*	*688*	*ambient*
27	North House Bin Loading Area	70	4	496	ambient

(note: all existing equipment stacks are included in this table for completeness, but are *italicized* to distinguish them from stacks associated with the new emission units)

Recommendation

The staff recommends to the Commissioner that the Part 70 Significant Source Modification be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

An application for the purposes of this review was received on May 4, 2000.

Emission Calculations

The calculations submitted by the applicant have been verified and found to be accurate and correct. These calculations are provided as the following Appendices of this Technical Support Document (TSD):

Appendix A.1.1 - Emission calculations for the existing permitted facilities based on CP-129-7488 as amended to date. (35 pages)

Appendix A.1.2 - Summary of the emission calculations for the existing permitted facilities based on CP-129-7488 as amended to date. (2 pages)

Appendix A.2.1 - Emission calculations for the modified and new facilities based on the proposed changes. (38 pages)

Appendix A.2.2 - Summary of the emission calculations for the modified and new facilities based on the proposed changes. (2 pages)

Appendix A.3 - Detailed roadway fugitive dust emission calculations. (2 pages)

All calculations for grain handling and boiler combustion are based on the most current AP-42 Emission Factors (Fifth Edition, Section 9.9.1 revised May 1998 and Section 1.4 revised March 1998, respectively). In the case of the existing permitted facility calculations, these factors differ from the original calculations made in CP-129-7488 but have been used to provide the most accurate estimate of the emissions changes associated with the proposed modification.

In addition to the emission factor changes, these emission calculations also include selected Merchandising House Storage Handling emissions which have been added as a result of the U.S. EPA determination discussed in the “Source Definition” section of this TSD (above).

Potential To Emit of Modification

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as “the maximum capacity of a stationary source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA.”

The following table reflects the change in unlimited PTE before controls associated with the proposed modification. Control equipment is not considered federally enforceable until it has been required in a federally enforceable permit.

Pollutant	Potential To Emit (tons/year)
PM	1022.7
PM-10	929.8
SO_2	0.0
VOC	-102.1
CO	0.0
NO_x	0.0

HAP's	Potential To Emit (tons/year)
Hexane	-103.3
TOTAL	-103.3

Justification for Modification

The Part 70 Operating permit is being modified through a Part 70 Significant Source Modification. This modification is being performed pursuant to 326 IAC 2-7-10.5(f)(4) because the potential to emit (PTE) Particulate Matter (PM) and Particulate Matter ten microns or less in diameter (PM10) from the modification are each greater than twenty-five (25) tons per year.

County Attainment Status

The source is located in Posey County.

Pollutant	Status
PM-10	attainment
SO_2	attainment
NO_2	attainment
Ozone	attainment
CO	attainment
Lead	attainment

(a) Volatile organic compounds (VOC) and oxides of nitrogen (NOx) are precursors for the formation of ozone. Therefore, VOC and NOx emissions are considered when evaluating the rule applicability relating to the ozone standards. Posey County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NOx emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

(b) Posey County has been classified as attainment or unclassifiable for all other criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for PSD, 326 IAC 2-2 and 40 CFR 52.21.

(c) This type of operation is not one of the 28 listed source categories under 326 IAC 2-2, but since it does meet the definition of the New Source Performance Standard Subpart DD (Standards of Performance for Grain Elevators) source category as described in the Federal Rule Applicability section, the fugitive PM emissions are counted toward determination of PSD applicability.

Source Status

Existing Source PSD or Emission Offset Definition (emissions after controls, based upon 8760 hours of operation per year at rated capacity and/or as otherwise limited):

Pollutant	Emissions (tons/year)
PM	240.3
PM-10	200.4
SO_2	0.3
VOC	208.4
CO	37.2
NOx	44.2

(a) This existing source is not a major stationary source because no attainment regulated pollutant is emitted at a rate of 250 tons per year or more, and it is not one of the 28 listed source categories.

(b) These emissions are based upon the most current AP-42 emission factors and the emission units permitted in CP-129-7488-00035 as amended to date. Because this existing permit was issued prior to release of the revised AP-42 emission factors, has been amended since issuance, and did not include fugitive PM emissions (see discussion of NSPS Subpart DD applicability in the "Source Definition" section of this TSD) the PTE in the above table may differ from the estimates in the previous permit; however, the resulting conclusion that the existing source is a minor PSD source is the same.

Potential to Emit of Modification After Issuance

The table below summarizes the potential to emit, reflecting all limits, of the significant emission units after controls. The control equipment is considered federally enforceable only after issuance of this Part 70 source modification.

	Potential to Emit (tons/year)						
Process/facility	PM *	PM-10	SO_2	VOC	CO	NO_X	HAPs
Truck Receiving and Conveyors (P1)	2.4	2.4	0.0	0.0	0.0	0.0	0.0
Rail/Hopper Bed Truck Receiving (P2) including fugitive particulate emissions	6.1	1.5	0.0	0.0	0.0	0.0	0.0
North Truck Receiving and Conveyors	1.9	1.9	0.0	0.0	0.0	0.0	0.0
P1 & North Truck Receiving PM fugitives	4.7	1.5	-	-	-	-	-
Barge Grain Receiving (P16) Barge Receiving fugitive emissions	3.0 0.5	3.0 0.1	0.0	0.0	0.0	0.0	0.0
Annex Silo Loading (P2A) **	1.4	0.7	0.0	0.0	0.0	0.0	0.0
Merchandizing Silo Loading (P26) **	*4.2*	*2.1*	0.0	0.0	0.0	0.0	0.0

North House Bin Loading **	4.2	2.1	0.0	0.0	0.0	0.0	0.0
North Storage Loadout including fugitive PM emissions **	4.2	1.4	0.0	0.0	0.0	0.0	0.0
Soybean Cleaning (P4)	3.6	3.6	0.0	0.0	0.0	0.0	0.0
Soybean Heater (P21)	included in (P5) Cracking/ Dehulling	0.5	0.0	0.0	0.0	0.0	0.0
Soybean Cracking/Dehulling (P5)	54.3	37.5	0.0	0.0	0.0	0.0	0.0
Soybean Expander (P23)	11.0	11.0	0.0	0.0	0.0	0.0	0.0
Soybean Flaking (P19)	1.7	1.7	0.0	0.0	0.0	0.0	0.0
Mineral Oil Absorber (P13)	0.0	0.0	0.0	39.5***	0.0	0.0	39.5***
DTDC Meal Drying (P10 & P11)	51.7	51.7	0.0	141.0***	0.0	0.0	141.0***
DTDC Meal Cooling (P12)	4.4	4.4	0.0	24.0***	0.0	0.0	24.0***
Meal Sizing (P9)	1.1	1.1	0.0	0.0	0.0	0.0	0.0
Kaolin Handling (P3)	0.4	0.4	0.0	0.0	0.0	0.0	0.0
Hull Grinding (P6)	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Hull Storage and Handling (P7)	1.5	1.5	0.0	0.0	0.0	0.0	0.0
Hull Pellet Cooling (P8)	22.5	22.5	0.0	0.0	0.0	0.0	0.0
Hull Pellet Storage (P8)	0.7	0.7	0.0	0.0	0.0	0.0	0.0
Meal Storage & Loadout Bins (P20)	1.1	1.1	0.0	0.0	0.0	0.0	0.0
Truck Meal Loadout (P14)	3.0	3.0	0.0	0.0	0.0	0.0	0.0
Barge/Rail Meal Loadout (P15)	3.0	3.0	0.0	0.0	0.0	0.0	0.0
Boiler 1 (P17)	1.1	1.1	0.1	0.8	12.4	14.7	0.0
Boiler 2 (P18)	1.1	1.1	0.1	0.8	12.4	14.7	0.0
Boiler 3 (P18A)	1.1	1.1	0.1	0.8	12.4	14.7	0.0
Roadway Fugitive Dust	0.6	0.1	0.0	0.0	0.0	0.0	0.0
TOTAL LIMITED PTE	**192.4**	**161.8**	**0.3**	**206.9**	**37.2**	**44.2**	**204.5**
	PM	PM-10	SO_2	VOC	CO	NO_X	HAPs

* PM point source emissions in this table (excluding boilers) reflect voluntary emission rate limits requested by Consolidated Grain and Barge Company. (Limited PM10 emissions are based on limited PM emissions and the appropriate PM10/PM ratio based on AP-42 factors or the effect of controls on particle size distribution.)

** Worst case limited PM/PM10 point source emissions assume that all beans put through the plant could be moved through the merchandising house or north receiving area and the annex storage prior to processing. The north receiving area was chosen as the worst case path due to higher emissions from that area. All beans will pass through the annex storage. Therefore, point source emissions from the merchandising house are not included in the limited PTE total.

*** VOC / HAP point source emissions in this table are based on the hexane limitations requested by the source.

(a) This modification to an existing minor stationary source is not major because the PTE of the modified source is still less than the PSD significant levels. Therefore, pursuant to 326 IAC 2-2, and 40 CFR 52.21, the PSD requirements do not apply.

(b) Fugitive particulate matter emissions have been included in this summary because there is an applicable New Source Performance Standard (Subpart DD) that was in effect on August 7, 1980.

(c) Fugitive VOC/HAP emissions (hexane) totaling 283.8 tons per year have not been included in this table because, for the purposes of PSD review, they are not included because neither VOCs nor HAPs are regulated pollutants in the NSPS which is stated as applicable in (b), above.

Federal Rule Applicability

40 CFR Part 60, Subpart DD (Standards of Performance for Grain Elevators)

Based on guidance from U.S. EPA Region 5 (a letter dated May 27, 1999, from George Czerniak) which states that a portion of the storage area at the nearby Merchandising House should be associated with the soybean oil extraction plant for the purpose of determining applicability of the New Source Performance Standard (NSPS) Subpart DD, this soybean oil extraction plant has a permanent storage capacity of one million bushels or more. Therefore, the provisions of the NSPS for grain elevators as defined in 326 IAC 12 and 40 CFR 60.301 are applicable.

Pursuant to 40 CFR 60.302(b), (c), and (d):

On and after the date on which the performance test required to be conducted by Sec. 60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any affected facility except a grain dryer any process emission which:

(1) Contains particulate matter in excess of 0.023 g/dscm (ca. 0.01 gr/dscf).
(2) Exhibits greater than 0 percent opacity.

On and after the 60th day of achieving the maximum production rate at which the affected facility will be operated, but no later than 180 days after initial startup, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere any fugitive emission from:

(1) Any individual truck unloading station, railcar unloading station, or railcar loading station, which exhibits greater than 5 percent opacity.
(2) Any grain handling operation which exhibits greater than 0 percent opacity.
(3) Any truck loading station which exhibits greater than 10 percent opacity.
(4) Any barge or ship loading station which exhibits greater than 20 percent opacity.

The owner or operator of any barge or ship unloading station shall operate as follows:

(1) The unloading leg shall be enclosed from the top (including the receiving hopper) to the center line of the bottom pulley and ventilation to a control device shall be maintained on both sides of the leg and the grain receiving hopper.
(2) The total rate of air ventilated shall be at least 32.1 actual cubic meters per cubic meter of grain handling capacity (ca. 40 ft³/bu).
(3) Rather than meet the requirements of paragraphs (d)(1) and (2) of this section the owner or operator may use other methods of emission control if it is demonstrated to the Administrator's satisfaction that they would reduce emissions of particulate matter to the same level or less.

40 CFR 60, Subpart Dc (Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units)

The three (3) 33.7 million (MM)Btu per hour boilers are subject to this rule because each of the boilers have a heat input capacity of greater than 10 MMBtu per hour. Pursuant to this rule, the company shall keep records of the fuel usage of the boilers.

40 CFR 60, Subpart Kb (Standards of Performance for Volatile Organic Liquid Storage Vessels)

The two (2) 14,000 gallon hexane storage tanks are subject to this rule because the hexane storage capacity is greater than 40 cubic meters. The four (4) 932 cubic meter soybean oil storage tanks are also subject to this rule because of the storage capacities and because the soybean oil containing 400 ppm hexane has a vapor pressure of 0.0712 kPa. Pursuant to this rule, the company shall keep the dimensions and capacities of the tanks readily available for the life of the tanks.

One (1) 8,000 gallon hexane work tank and one (1) 1,000 gallon dust suppression soybean/ mineral oil storage tank are not subject to this rule because the storage capacities are less than 40 cubic meters.

There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs)(326 IAC 14 and 40 CFR Part 63) applicable to this proposed modification.

State Rule Applicability

326 IAC 2-4.1-1 (HAPs major sources: new source toxics control)

Although this source is a major source of HAPs, it was originally permitted to construct prior to the July 27, 1997, applicability date of this rule and the modifications being made do not constitute a reconstruction; therefore, 326 IAC 2-4.1 is not applicable. The new facilities being added to this source as part of the modifications do not individually have the potential to emit hazardous air pollutants (HAPs).

326 IAC 2-6 (Emission Reporting)

These facilities are subject to 326 IAC 2-6 (Emission Reporting), because the source emits more than 100 tons per year of PM, PM10, and VOC. Pursuant to this rule, the owner/operator of this facility must annually submit an emission statement of the facility. The annual statement must be received by July 1 of each year and must contain the minimum requirements as specified in 326 IAC 2-6-4.

326 IAC 5-1-2 (Opacity Limitations)

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Exemptions), opacity shall meet the following, unless otherwise stated in this approval:

(a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

(b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

326 IAC 6-2-4 (Particulate Emissions Limitations for Sources of Indirect Heating)

The three (3) 33.7 MMBtu per hour natural gas fired boilers are subject to this rule. Pursuant to this rule, the particulate matter (PM) emissions for these boilers shall be limited to 0.328 pounds per million BTU heat input as shown below:

Pt = 1.09/Q^0.26 = 1.09/101^0.26 = 0.328 lb PM/mmBtu

where: Pt = lbs PM emitted/mmBtu heat input
Q = total source mmBtu/hr heat input

Based on potential emissions calculated using AP-42 emission factors, these boilers can comply with 326 IAC 6-2-4.

326 IAC 6-3-2 (Process Operations)

The particulate matter (PM) from the facilities listed below shall be limited by the following:

Interpolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$E = 4.10\ P^{0.67}$ where E = rate of emission in pounds per hour and P = process weight rate in tons per hour

or

Interpolation and extrapolation of the data for the process weight rate in excess of sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$E = 55.0\ P^{0.11} - 40$ where E = rate of emission in pounds per hour and P = process weight rate in tons per hour

Facilities to which 326 IAC 6-3-2 applies:
Truck Receiving and Conveyors (P1), Rail/Hopper Bed Truck Receiving (P2), North Truck Receiving and Conveyors, Barge Grain Receiving (P16), Annex Silo Loading (P2A), Merchandizing Silo Loading (P26), North House Bin Loading, North House Storage Loadout, Soybean Cleaning (P4), Soybean Heater (P21), Soybean Cracking/Dehulling (P5), Soybean Expander (P23), Soybean Flaking (P19), DTDC Meal Drying (P10 & P11), DTDC Meal Cooling (P12), Meal Sizing (P9), Kaolin Handling (P3), Hull Grinding (P6), Hull Storage Loading (P7), Hull Storage Unloading (P7), Hull Pellet Cooling (P8), Hull Pellet Storage (P8), Meal Storage & Loadout Bins (P20), Truck Meal Loadout (P14), Barge/Rail Meal Loadout (P15)

The control equipment shall be in operation at all times these facilities are in operation. The process operations will be in compliance with this rule because the potential controlled PM emissions are less than the calculated allowable PM emissions. According to this rule, the company is “allowed” to emit up to its calculated allowable PM emissions. However, to avoid the Prevention of Significant Deterioration (PSD) requirements of 326 IAC 2-2 and 40 CFR 52.21, Consolidated Grain and Barge Co. has requested facility specific PM limits which will keep the aggregated source emissions less than the overall PSD threshold level of 250 tons of PM per year. Compliance with these facility specific limits will demonstrate compliance with 326 IAC 6-3-2.

326 IAC 8-1-6 (VOC Rules - General Reduction Requirements for New Facilities)

Since this source is not regulated by other provisions of 326 IAC 8, VOC emissions from the soybean oil extractor plant are subject to this rule. Pursuant to this rule, these emissions must be controlled using the Best Available Control Technology (BACT).

During review of construction permit CP-129-7488-00035, Consolidated submitted an analysis of BACT for VOC emissions from the soybean extractor, meal dryers, meal coolers and the general area. The analysis evaluated catalytic incineration, recuperative thermal incineration, regenerative thermal incineration, condensation, carbon adsorption, absorption, and carbon adsorption oxidation.

The use of catalytic incineration, recuperative thermal incineration, regenerative thermal incineration, or carbon adsorption oxidation technologies at the oil extraction plant create explosion hazards. The carbon adsorption system also overheats during regeneration causing an explosion hazard. Due to safety reasons, these systems were excluded as viable BACT options.

The condensation system is recommended for emission streams containing between 5,000 and 10,000 ppm. The emission stream from this plant will always be less than 5,000 ppm recommended for starting concentration for condensation. The absorption system to control hexane (VOC) emissions from the oil extractor is presently the only viable control technology. The applicant is installing a mineral oil absorber with an expected efficiency of 99.5 percent for the oil extractor. This control system is consistent with other state BACT analyses performed for these types of facilities including Central Soya located in Morristown, Indiana.

The exhaust air streams from the meal dryers and cooler have relatively high airflows and relatively low VOC concentrations. Mineral oil absorption is typically applied to low airflow and high VOC input concentrations, and therefore is not a very efficient VOC recovery solution for the meal dryers and cooler. However, absorption and carbon adsorber (a safety hazard) control technologies were considered for the meal dryers and cooler. The cost effectiveness of carbon adsorption systems was $12,092 per ton for meal dryers and $12,638 per ton for meal coolers. The cost effectiveness of absorption systems was $2,520,563 per ton for meal dryers and $2,748,988 per ton for meal coolers. Hence, these add on controls for the meal dryers and coolers were rejected as cost prohibitive.

Pursuant to CP 129-7488-00035, the OAM determined that BACT for this plant shall consist of the following:

Facility	BACT	VOC (Hexane) Emission Limit including upset conditions *
Oil extractor, desolventizer, solvent separator and vent system	Mineral Oil Absorber System	0.084 lb/ton soybean processed
Meal dryers	None	0.30 lb/ton soybean processed
Meal cooler	None	0.051 lb/ton soybean processed

Re-review of this BACT determination is not being performed as part of the current source modification because the requested changes based on revised emissions estimates resulting from the stack testing required in CP 129-7488-00035 and better operational data will not increase volatile organic compound potential emissions. To ensure that the BACT determination is valid at the increased crush capacity of the plant, the company shall assure compliance with the above VOC emission limits by performing monitoring and recordkeeping such that the following limits are not exceeded:

(a) The hexane usage shall be limited to 0.225 gallons per ton of soybean crushed *, and

(b) The soybeans processed shall be limited to 940,240 tons of soybeans processed per twelve consecutive months.

* Note: The hexane use limits in the table and (a),above, are based on the original limits established in CP129-7488-00035 which corresponded to the previous maximum crush capacity of 882,877 tons per year. The limits were adjusted to result in the same overall hexane usage at the higher crush capacity.

The company shall continue to minimize hexane emission losses by training operators and supervisors of the plant. At the end of each calendar year, the company shall submit to the IDEM a progress report of efforts taken to reduce hexane emissions from the plant.

Compliance Requirements

Permits issued under 326 IAC 2-7 are required to ensure that sources can demonstrate compliance with applicable state and federal rules on a more or less continuous basis. All state and federal rules contain compliance provisions, however, these provisions do not always fulfill the requirement for a more or less continuous demonstration. When this occurs IDEM, OAM, in conjunction with the source, must develop specific conditions to satisfy 326 IAC 2-7-5. As a result, compliance requirements are divided into two sections: Compliance Determination Requirements and Compliance Monitoring Requirements.

Compliance Determination Requirements in Section D of the permit are those conditions that are found more or less directly within state and federal rules and the violation of which serves as grounds for enforcement action. If these conditions are not sufficient to demonstrate continuous compliance, they will be supplemented with Compliance Monitoring Requirements, also Section D of the permit. Unlike Compliance Determination Requirements, failure to meet Compliance Monitoring conditions would serve as a trigger for corrective actions and not grounds for enforcement action. However, a violation in relation to a compliance monitoring condition will arise through a source's failure to take the appropriate corrective actions within a specific time period.

The compliance monitoring requirements applicable to this modification are as follows:

1. The baghouses for the North Truck Receiving, P1 Truck Receiving/Receiving Leg, Barge Receiving/Conveyors, Kaolin Receiving Bins, Magnet, Cleaning System, Hull Grinders, Hull Storage Bins, Pellet Mill Hull Feed Hopper, Pellet Storage Bins, Meal Flakers, Meal Screeners, Meal Screening Hopper, Meal Grinders, Mixed Meal Elevator Leg, Truck Loadout, Rail Loadout, and Barge Loadout have applicable compliance monitoring conditions as specified below:

   (a) Daily visible emissions notations of the baghouse stack exhausts shall be performed during normal daylight operations. A trained employee will record whether emissions are normal or abnormal. For processes operated continuously "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time. In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions. A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process. The Compliance response plan for this unit shall contain troubleshooting contingency and corrective actions for when an abnormal emission is observed.

   (b) The Permittee shall record the total static pressure drop across the baghouses at least once daily when the associated emission unit is in operation. Unless operated under conditions for which the Compliance response plan specifies otherwise, the pressure drop across each baghouse shall be maintained within the range of 3.0 to 9.0 inches of water or a range established during the latest stack test. The Compliance response plan for this unit shall contain troubleshooting contingency and corrective actions for when the pressure reading is outside of the above mentioned range for any one reading.

   (c) An inspection shall be performed each calender quarter of all bags. All defective bags shall be replaced.

These monitoring conditions are necessary because the baghouses for the above listed facilities must operate properly to ensure compliance with 326 IAC 6-3 (Process Operations), 326 IAC 2-2 (PSD), and 326 IAC 2-7 (Part 70).

2. The cyclones for the Cleaning System, Jet Dryers, CCD Dryers, CCC Coolers, Cracking and Dehulling, Hull Screening/Aspiration, Hull Pellet Cooler, DTDC Dryers, DTDC Cooler have applicable compliance monitoring conditions as specified below:

   (a) Daily visible emissions notations of the cyclone stack exhausts shall be performed during normal daylight operations. A trained employee will record whether emissions are normal or abnormal. For processes operated continuously "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time. In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions. A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process. The Compliance response plan for this unit shall contain troubleshooting contingency and corrective actions for when an abnormal emission is observed.

   (b) An inspection shall be performed each calender quarter of all cyclones controlling operations when venting to the atmosphere.

   These monitoring conditions are necessary because the cyclones for the above listed facilities must operate properly to ensure compliance with 326 IAC 6-3 (Process Operations), 326 IAC 2-2 (PSD), and 326 IAC 2-7 (Part 70).

3. Daily visible emissions notations of the H.B. Truck and Rail receiving pits shall be performed from outside the receiving area enclosure during normal daylight operations when rail car or truck unloading is occurring. These notations should be taken from a position approximately perpendicular to the prevailing wind direction which allows the trained employee to see the leeward side of the structure. during normal daylight operations. A trained employee will record whether emissions are normal or abnormal. For processes operated continuously "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time. In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions. A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process. The Compliance response plan for this unit shall contain troubleshooting contingency and corrective actions for when an abnormal emission is observed.

   This monitoring condition is necessary because the facility must be operated properly to ensure compliance with 326 IAC 6-3 (Process Operations), 326 IAC 2-2 (PSD), and 326 IAC 2-7 (Part 70).

4. The soybean oil extraction operations have applicable compliance monitoring conditions as specified below:

   (A) The inlet vacuum pressure of the vapor stream to the absorber shall not exceed 10 inches of water and the flow rate of the mineral oil through the absorber shall not be less than 15 gallons per minute. When the process is in operation, an electronic data management system (EDMS) shall record the instantaneous inlet vacuum pressure and flow rate on a frequency of not less than every 15 minutes.

(B) The temperature of the mineral oil entering the absorber shall be kept in a range of 70 to 105 degrees Fahrenheit (^{o}F). When the process is in operation, an electronic data management system (EDMS) shall record the instantaneous temperature on a frequency of not less than every 15 minutes.

(C) The temperature of the soybean oil entering the mineral-oil-stripping column shall not be less than 200 degrees Fahrenheit (^{o}F) for adequate stripping of the absorbed hexane from the oil. When the process is in operation, an EDMS shall record the instantaneous temperature on a frequency of not less than every 15 minutes.

The Compliance Response Plan for these units shall contain troubleshooting contingency and response steps for when the parameter readings are outside of the above mentioned ranges. In the event that a breakdown of the EDMS occurs, a record shall be made of the times and reasons of the breakdown and efforts made to correct the problem. To the extent practicable, supplemental or intermittent monitoring of the parameters should be implemented at intervals no less frequent than every 2 hours.

These monitoring conditions are necessary because the absorber and stripping column for the extraction processes must operate properly to ensure compliance with 326 IAC 8-1-6 (BACT), 326 IAC 2-2 (PSD), and 326 IAC 2-7 (Part 70).

Conclusion

The construction of this proposed modification shall be subject to the conditions of the attached proposed Part 70 Significant Source Modification No. 129-12235-00035.

CG&B **Emissions Estimate** April 2000

Note: The allowable emissions of each process unit as described below are accepted by the source to enable the source to not be a major stationary source: No attainment pollutant is emitted at a rate of 250 tons per year or greater. Also, the source is not one of the 28-listed source categories. Therefore, pursuant to 326 IAC 2-2 and 40 CFR 52.21, the PSD requirements do not apply.

TRUCK ONLY / RAIL RECEIVING PROCESS

Truck Only Receiving P1

PM Emission Factor	0.18	lb/ton	(Table 9.9.1-1, Straight Truck Receiving AP-42, 5/98)
PM10 Emission Factor	0.059	lb/ton	
PM10/PM ratio	0.328		
Unloading rate/hour	600	tons	
Unloading rate/year	940,240	tons (crush capacity)	
Capture efficiency	95	%	

Potential PM emissions due to soybean unloading, excluding fugitives = Emission factor * process rate* capture effy/100

a. Max Hourly = (lb/ton)*(unload rate ton/hour)*(capture effy/100)
= 102.6 lbs/hour

b. Max Yearly = (lb/ton)*(unload rate ton/year)/(2000 lb/ton)*(capture effy/100)
= 80.4 tons/year

Potential PM10 emissions due to soybean unloading, excluding fugitives = Emission factor * process rate*(capture eff/100)

a. Max Hourly = (lb/ton)*(unload rate ton/hour)*(capture eff/100)
= 33.6 lbs/hour

b. Max Yearly = (lb/ton)*(unload rate ton/year/(2000 lb/ton)*(capture effy/100)
= 26.4 tons/year

Potential fugitive PM emissions due to soybean unloading = Emission factor * process rate * (100-Capture efficiency)/100

a. Max Hourly = (lb/ton)*(unload rate ton/hour)*((100-eff'y)/100)
= 5.4 lbs/hour

b. Max Yearly = (lb/ton)*(unload rate ton/year)*((100-eff'y)/100)/(2000 lb/ton)
= 4.2 tons/year

Potential fugitive PM10 emissions due to soybean unloading = Emission factor * process rate * (100-Capture efficiency)/100

a. Max Hourly = (lb/ton)*(unload rate ton/hour)*((100-eff'y)/100)
= 1.8 lbs/hour

b. Max Yearly = (lb/ton)*(unload rate ton/year)*((100-eff'y/100))/(2000 lb/ton)
= 1.4 tons/year

Maximum controlled PM emissions from truck only receiving and receiving legs filter (C-1) = baghouse outlet grain loading * gas flow rate

Truck only filter	13,000	cfm	
Outlet loading	0.005	gr/cfm	11/11/98 compliance test: 0.000365 gr/cfm
PM10/PM Ratio	1		

a. Max Hourly = (outlet loading gr/scf)*(air flow cfm)*(60 min/hour)/(7000 grains/lb)
= 0.56 pounds/hour

b. Max Yearly = max hourly* 8,760 hrs/yr / 2000 lb/ton
2.44 tons/year

Maximum controlled PM10 emissions from truck only receiving and receiving legs filter (C-1)	=	baghouse outlet grain loading * gas flow rate	
a. Max Hourly	=	(outlet loading gr/scf)*(air flow cfm)*(60 min/hour)/(7000 grains/lb)	
	=	0.56	pounds/hour
b. Max Yearly	=	max hourly* (8,760hrs/yr) /(2000 lb/ton)	
		2.44	tons/year

Rail/H.B.Truck Receiving P2
(choke unloading only - railcar and H.B. truck)

PM Emission Factor	0.035	lb/ton	(Table 9.9.1-1, Truck Receiving AP-42, 5/98)
PM10 Emission Factor	0.0078	lb/ton	
PM10/PM ratio	0.223		
Unloading rate/hour	540	tons	
Unloading rate/year	940,240	tons	
Capture efficiency	60	% due to shed enclosure	

Potential PM emissions due to soybean unloading	=	Emission factor * process rate	
a. Max Hourly	=	(lb/ton)*(unload rate ton/hour)	
	=	18.9	lbs/hour
b. Max Yearly	=	(lb/ton)*(unload rate ton/year)/(2000 lb/ton)	
	=	16.5	tons/year
Potential PM10 emissions due to soybean unloading	=	Emission factor * process rate	
a. Max Hourly	=	(lb/ton)*(unload rate ton/hour)	
	=	4.2	lbs/hour
b. Max Yearly	=	(lb/ton)*(unload rate ton/year)/(2000 lb/ton)	
	=	3.7	tons/year
Maximum controlled PM emissions due to soybean unloading	=	Emission factor * process rate * (100-Capture efficiency)/100	
a. Max Hourly	=	(lb/ton)*(unload rate ton/hour)*((100-eff.)/100)	
	=	7.6	lbs/hour
b. Max Yearly	=	(lb/ton)*(unload rate ton/year)*((100-eff.)/100)/(2000 lb/ton)	
	=	6.6	tons/year
Maximum controlled PM10 emissions due to soybean unloading	=	Emission factor * process rate * (100-Capture efficiency)/100	
a. Max Hourly	=	(lb/ton)*(unload rate ton/hour)*((100-eff'y)/100)	
	=	1.7	lbs/hour
b. Max Yearly	=	(lb/ton)*(unload rate ton/year)*((100-eff'y)/100)/(2000 lb/ton)	
	=	1.5	tons/year

North Truck Only Receiving P24

PM Emission Factor	0.18	lb/ton	(Table 9.9.1-1, Straight Truck Receiving AP-42, 5/98)
PM10 Emission Factor	0.059	lb/ton	
PM10/PM ratio	0.328		
Unloading rate/hour	360	tons	
Unloading rate/year	108,000	tons	
Capture efficiency	95	%	

Bushel/hour	12000	
Beans	3,600,000	bushels
Corn/Wheat	-	bushels
Total	3,600,000	bushels

Note: Corn and Wheat bushels are a maximum. These my become bean bushels depending upon market conditions.

Potential PM emissions due to soybean unloading, excluding fugitives = Emission factor * process rate* capture effy/100

a. Max Hourly = (lb/ton)*(unload rate ton/hour)*(capture eff./100)
= 64.8 lbs/hour

b. Max Yearly = (lb/ton)*(unload rate ton/year)/(2000 lb/ton)*(capture eff./100)
= 9.7 tons/year

Potential PM10 emissions due to soybean unloading, excluding fugitives = Emission factor * process rate*(capture eff/100)

a. Max Hourly = (lb/ton)*(unload rate ton/hour)*(capture eff/100)
= 21.2 lbs/hour

b. Max Yearly = (lb/ton)*(unload rate ton/year/(2000 lb/ton)*(capture effy/100)
= 3.2 tons/year

Potential fugitive PM emissions due to soybean unloading = Emission factor * process rate * (100-Capture efficiency)/100

a. Max Hourly = (lb/ton)*(unload rate ton/hour)*((100-eff'.)/100)
= 3.2 lbs/hour

b. Max Yearly = (lb/ton)*(unload rate ton/year)*((100-eff'.)/100)/(2000 lb/ton)
= 0.5 tons/year

Potential fugitive PM10 emissions due to soybean unloading = Emission factor * process rate * (100-Capture efficiency)/100

a. Max Hourly = (lb/ton)*(unload rate ton/hour)*((100-eff'.)/100)
= 1.1 lbs/hour

b. Max Yearly = (lb/ton)*(unload rate ton/year)*((100-eff'./100))/(2000 lb/ton)
= 0.2 tons/year

Maximum controlled PM emissions from truck only receiving filter (C-24) = baghouse outlet grain loading * gas flow rate

Truck only filter	10,000	cfm	
Outlet loading	0.005	gr/scf	11/11/98 compliance test on similar source: 0.000365 gr/scf
PM10/PM Ratio	1		

a. Max Hourly = (outlet loading gr/scf)*(air flow cfm)*(60 min/hour)/(7000 grains/lb)
= 0.43 pounds/hour

b. Max Yearly = max hourly* 8,760 hrs/yr / 2000 lb/ton
1.88 tons/year

Maximum controlled PM10 emissions from north truck receiving filter = baghouse outlet grain loading * gas flow rate

a. Max Hourly = (outlet loading gr/scf)*(air flow cfm)*(60 min/hour)/(7000 grains/lb)
= 0.43 pounds/hour

b. Max Yearly = max hourly* (8,760hrs/yr) /(2000 lb/ton)
1.88 tons/year

Allowable PM emissions from Rule 326 IAC 6-3-2 for all truck/rail receiving process	=	$55.0 * P^{0.11} - 40$	lbs/hour
	=	$55.0*(\text{all truck/rail receiving})^{0.11} - 40$	
	=	83.0	lbs/hour
	=	lb/hr*(hr/yr)/(lb/ton)	
	=	363	tons/year
Requested:			
State allowable PM emissions from the truck only receiving (P1) process for the purpose of permitting	=	Construction Permit PM emissions Limits	
	=	2.44	tons/year
	=	0.56	pounds /hour

PM emission limit basis #1: The process rate is limited by annual throughput (source-accepted permit limit) and the rated hourly capacity of the conveying equipment. However, the actual hourly rate is lower and is reduced by many factors (grain type and quality in the current and previous delivery vehicle, type and size of delivery vehicle, delivery vehicle movement speed to and from the station, etc.). These same factors increase the hours of operation as calculated from the ratio of the annual throughput maximum divided by the conveying equipment capacity. Receiving hours vary year to year by grain quality, market conditions, etc. Conveying and control equipment operation is initiated upon arrival of the day's first delivery vehicle and continues as long as delivery vehicles are being unloaded and await unloading. Operation of the system is reinitiated upon arrival of subsequent vehicles. No system operation hours-of-use record is maintained. Hourly emission estimates are based on the presumed maximum exhaust grain loading (0.005 gr/acfm) of the baghouse control and the design air flow (acfm) of the exhaust fan.

The emissions estimate basis would be modified from these presumptions (with requisite request to modify the allowable permitted emissions) if an emissions test would reveal the grain loading to be in excess of 0.005 gr/acfm or the air flow to be in excess of the design air flow. Operation of the control equipment coincident with process operation is accepted by the source as a permit condition. Continuous operation is presumed for annual emission estimating purposes. Thus, hourly and annual emission estimates are maximized based on source-accepted factors which are generally accepted industrial factors. The permit limits are based on these estimated emissions. Therefore, based on available information and best engineering judgement, the emission limits are based on the higher of the presumed or as-tested exhaust grain loading, the higher of the presumed or as-tested air flow, and continuous operation.

Requested:			
State allowable PM emissions from the rail/H.B. truck (P2) receiving process for the purpose of permitting	=	Construction Permit PM emissions Limits	
	=	6.6	tons/year
	=	7.6	pounds /hour

PM emission limit basis #2: Hourly emission estimates are based on the maximum hourly equipment capacity, the accepted AP-42 emission factor (lb/ton), the best engineering judgement of the enclosure pollutant capture efficiency. Annual emissions estimates account for the annual process capacity (source-accepted permit condition). **The best representation of these two frames of reference is establishing limit on a pound per ton of bean unloaded basis. For this case the maximum hourly capacity is 600 tons and the requested hourly emission limit of 7.6 lbs per hour; therefore, a limit of 0.013 pounds per ton of bean will be used. This limit best represents the possible hourly maximum emissions while acounting for the limited annual plant throughput. Based on the processing limit of 940,240 tons of bean for the plant, this 0.013 lb/ton of bean limit is equivalent to 6.1 tons PM per year.**

Requested:			
State allowable PM emissions from the north truck receiving (P24) process for the purpose of permitting	=	Construction Permit PM emissions Limits	
	=	1.88	tons/year
	=	0.43	pounds /hour

PM emission limit basis: Same as PM emission basis #1.

Grain Barge Receiving P16

The bean barge receiving system includes: crane unloading hopper aspirated to the barge meal loadout baghouse (C16), an enclosed conveyor replacing the barge belt, an oil application system for dust control, 2 enclosed bucket elevators, and 3 enclosed belt/mass flow conveyors. The system discharges to the truck/rail receiving leg. The barge unloading emission factor of interim AP-42, Table 9.9.1-2, overestimates both potential and controlled emissions for the proposed system. An emission factor development document, PB 229-996: *Emission Control In The Grain And Feed Industry, Volume 1* , includes a section on barge unloading (copy enclosed). A statement is made that ""Dust emitted during barge and ship unloading is relatively small in quantity in comparison with railroad car or truck unloading. Also, the statement is made that "It appears that little dust was generated in the barge by the bucket elevator(s)." The proposed system uses a clamshell versus elevator legs. Legs generate more dust that a clamshell due to the churning action of the legs. Also, the emissions measured were the input to the baghouse aspirating the leg receiving hopper and the unloading system conveyor transfer points. Combining all these factors, it is estimated that potential emissions from the proposed unloading system will be 10% of the measured emissions: 0.21 lb/ton. Also, due to improvements in capture efficiency due to hood design improvements, it is estimated that the capture efficiency will be 95%.

PM Emission Factor	0.021	lb/ton
PM10 Emission Factor	0.0053	lb/ton
PM10/PM ratio	0.25	
Unloading rate/hour	600	tons
Unloading rate/year	940,240	tons
Capture efficiency	95	%

= Emission factor * process rate * Capture efficiency/100

Potential PM emissions due to soybean unloading excluding fugitive emissions

a. Max Hourly = (lb/ton)*(rate ton/hour)*(effy/100)
= 12.0 lbs/hour

b. Max Yearly = (lb/ton)*(rate ton/year)*(effy/100)/(2000 lb/ton)
= 9.4 tons/year

Potential PM10 emissions due to soybean unloading excluding fugitive emissions = Emission factor * process rate * Capture efficiency/100

a. Max Hourly = (lb/ton)*(rate ton/hour)*(effy/100)
= 3.0 lbs/hour

b. Max Yearly = (lb/ton)*(rate ton/year)*(effy/100)/(2000 lb/ton)
= 2.3 tons/year

Potential Fugitive PM emissions due to soybean unloading = Emission factor * process rate * (100-Capture efficiency)/100

a. Max Hourly = (lb/ton)*(rate ton/hour)*((100-effy)/100)
= 0.6 lbs/hour

b. Max Yearly = (lb/ton)*(rate ton/year)*((100-effy)/100)/(2000 lb/ton)
= 0.5 tons/year

Potential Fugitive PM10 emissions due to soybean unloading = Emission factor * process rate * (100-Capture efficiency)/100

a. Max Hourly = (lb/ton)*(rate ton/hour)*((100-effy)/100)
= 0.16 lbs/hour

b. Max Yearly = (lb/ton)*(rate ton/year)*(effy/100)/(2000 lb/ton)
= 0.12 tons/year

Maximum controlled PM emissions from barge unloading	=	baghouse outlet grain loading * gas flow rate	
Filter	16,000	scfm	
Outlet loading	0.005	gr/scfm	
a. Max Hourly	=	(0.005 gr/scf)* 16,000 scfm *60 min/hour /7000 grains/lb	
	=	0.7	pounds/hour
b. Max Yearly	=	max hourly * 8,760hrs/yr / 2000 lb/ton	
		3.0	tons/year
Maximum controlled PM10 emissions from barge unloading	=	baghouse outlet grain loading * gas flow rate	
a. Max Hourly	=	(0.005 gr/scf)*16,000 cfm *60 min/hour /7000 grains/lb	
	=	0.7	pounds/hour
b. Max Yearly	=	max hourly * (8,760hrs/yr) /(2000 lb/ton)	
		3.0	tons/year
Allowable PM emissions from Rule 326 IAC 6-3-2 for the barge receiving system	=	$55.0 * P^{0.11} - 40$	lbs/hour
	=	$55.0*(\text{upload rate ton/hr})^{0.11} - 40$	
	=	71.2	lbs/hour
	=	312	tons/year
Potential PM emissions from the barge receiving systems	=	barge receiving PM	
	=	9.4	tons/year
Requested:			
State allowable PM emissions from the barge receiving system for the purpose of permitting	=	Construction Permit PM emissions Limits	
	=	3.00	tons/year
	=	0.69	lbs/hour

PM emission limit basis: Same as PM emission basis #1.

SOYBEAN STORAGE HANDLING PROCESS

Note: All handling equipment is totally enclosed. Therefore, potential emissions from the same are zero.

Soybean Grain Storage Silos / Bins

Silo loading - ANNEX (P2A):

PM Emission Factor	0.03	lb/ton	(Table 9.9.1-3, Scale bin vent, Draft AP-42, May 1994)
PM10 Emission Factor	0.015	lb/ton	
PM10/PM ratio	0.5		
Loading rate/hour	1140	tons	
Loading rate/year	940,240	tons	
Mineral oil control efficiency	90	%	(Mineral oil + settling chamber effect of silo)

Potential PM emissions due to soybean bin loading	=	Emission factor * process rate	
a. Max Hourly	=	(lb/ton)*(load rate ton/hour)	
	=	34.2	lbs/hour
b. Max Yearly	=	(lb/ton)*(ton/year)/(2000 lb/ton)	
	=	14.1	tons/year

Potential PM10 emissions due to soybean bin loading = Potential PM Emissions * PM10/PM ratio

a. Max Hourly = max hrly lb/hour * PM10/PM ratio
= 17.1 lbs/hour

b. Max Yearly = max yrly ton/yr * PM10/PM ratio
= 7.05 tons/year

Maximum controlled PM emissions from storage bin loading = Potential PM emissions * (100 - control efficiency)/100

a. Max Hourly = lb/hr * (100-effy)/100
= 3.4 lbs/hour

b. Max Yearly = ton/yr * (100-effy)/100
= 1.4 tons/year

Maximum controlled PM10 emissions from storage bin loading = Potential PM10 emissions * (100- mineral oil control efficiency)/100

a. Max Hourly = lb/hr * (100-effy)/100
= 1.71 lbs/hour

b. Max Yearly = ton/yr * (100-effy)/100
= 0.7 tons/year

Silo loading (P26) - MERCHANDIZING HOUSE:

PM Emission Factor	0.03	lb/ton	(Table 9.9.1-3, Scale bin vent, Draft AP-42, May 1994)	
PM10 Emission Factor	0.015	lb/ton		
PM10/PM ratio	0.5			
Loading rate/hour	1340	tons - maximum		
Loading rate/year	141,036	tons	Max. % of crush:	15.0%
Settling chamber effect of silo	70	%		

Potential PM emissions due to soybean bin loading = Emission factor * process rate

a. Max Hourly = (lb/ton)*(ton/hour)
= 40.2 lbs/hour

b. Max Yearly = (lb/ton)*(ton/year)/(2000 lb/ton)
= 2.1 tons/year

Potential PM10 emissions due to soybean bin loading = Potential PM Emissions * PM10/PM ratio

a. Max Hourly = lb/hour * PM10/PM ratio
= 20.1 lbs/hour

b. Max Yearly = ton/yr * PM10/PM ratio
= 1.06 tons/year

Maximum controlled PM emissions from storage bin loading	=	Potential PM emissions * (100 - control efficiency)/100
a. Max Hourly	=	lb/hr * (100-effy)/100
	=	12.1 lbs/hour
b. Max Yearly	=	ton/yr * (100-effy)/100
	=	0.6 tons/year
Maximum controlled PM10 emissions from storage bin loading	=	Potential PM10 emissions * (100- control efficiency)/100
a. Max Hourly	=	lb/hr * (100-effy)/100
	=	6.0 lbs/hour
b. Max Yearly	=	ton/yr * (100-effy)/100
	=	0.3 tons/year

Bin loading - NORTH HOUSE (P27):

PM Emission Factor	0.03	lb/ton	(Table 9.9.1-3, Scale bin vent, Draft AP-42, May 1994)
PM10 Emission Factor	0.015	lb/ton	
PM10/PM ratio	0.5		
Loading rate/hour	360	tons - maximum	
Loading rate/year	108,000	tons	
Settling chamber effect of silo	70	%	

Potential PM emissions due to soybean bin loading	=	Emission factor * process rate
a. Max Hourly	=	(lb/ton)*(ton/hour)
	=	10.8 lbs/hour
b. Max Yearly	=	(lb/ton)*(ton/year)/(2000 lb/ton)
	=	1.6 tons/year
Potential PM10 emissions due to soybean bin loading	=	Potential PM Emissions * PM10/PM ratio
a. Max Hourly	=	lb/hour * PM10/PM ratio
	=	5.4 lbs/hour
b. Max Yearly	=	ton/yr * PM10/PM ratio
	=	0.81 tons/year
Maximum controlled PM emissions from storage bin loading	=	Potential PM emissions * (100 - control efficiency)/100
a. Max Hourly	=	lb/hr * (100-effy)/100
	=	3.2 lbs/hour
b. Max Yearly	=	ton/yr * (100-effy)/100
	=	0.5 tons/year

Maximum controlled PM10 emissions from storage bin loading	=	Potential PM10 emissions * (100- control efficiency)/100	
a. Max Hourly	=	lb/hr * (100-effy)/100	
	=	1.6	lbs/hour
b. Max Yearly	=	ton/yr * (100-effy)/100	
	=	0.2	tons/year
Allowable PM emissions from Rule 326 IAC 6-3-2 for all storage handling process	=	$55.0* P^{0.11} - 40$	lbs/hour
	=	$55.0*(\text{all storage loading})^{0.11} - 40$	
	=	91.9	lbs/hour
	=	lb/hr*(hr/yr)/(lb/ton)	
	=	402	tons/year
Requested: State allowable PM emissions from the annex storage handling process for the purpose of permitting	=	Construction Permit PM emissions Limits	
	=	1.4	tons/year
	=	3.4	pounds/hour
	PM emission limit basis:	Same as PM emission basis #2. **Limit will be 0.003 lb/ton bean handled, equivalent to 1.4 TPY PM based on production limit**.	
Requested: State allowable PM emissions from the merchandizing storage handling process for the purpose of permitting	=	Construction Permit PM emissions Limits	
	=	0.6	tons/year
	=	12.1	pounds/hour
	PM emission limit basis:	Same as PM emission basis #2. **Limit will be 0.009 lb/ton bean handled, equivalent to 4.2 TPY PM based on production limit**.	
Requested: State allowable PM emissions from the north storage handling process for the purpose of permitting	=	Construction Permit PM emissions Limits	
	=	0.5	tons/year
	=	3.2	pounds/hour
	PM emission limit basis:	Same as PM emission basis #2. **Limit will be 0.009 lb/ton bean handled, equivalent to 4.2 TPY PM based on production limit**.	

Bin loadout - NORTH HOUSE (P25):

PM Emission Factor	0.086	lb/ton	(Table 9.9.1-1, Truck grain shipping, AP-42, May 1998)
PM10 Emission Factor	0.029	lb/ton	
PM10/PM ratio	0.34		
Unloading rate/hour	360	tons - maximum	
Unloading rate/year	108,000	tons	
Choke loadout & oil application	90	%	

Potential PM emissions due to soybean loadout	=	Emission factor * process rate	
a. Max Hourly	=	(lb/ton)*(ton/hour)	
	=	31.0	lbs/hour
b. Max Yearly	=	(lb/ton)*(ton/year)/(2000 lb/ton)	
	=	4.6	tons/year

Potential PM10 emissions due to soybean loadout	=	Potential PM Emissions * PM10/PM ratio	
a. Max Hourly	=	lb/hour * PM10/PM ratio	
	=	10.4	lbs/hour
b. Max Yearly	=	ton/yr * PM10/PM ratio	
	=	1.6	tons/year
Maximum controlled PM emissions from storage loadout	=	Potential PM emissions * (100 - control efficiency)/100	
a. Max Hourly	=	lb/hr * (100-effy)/100	
	=	3.1	lbs/hour
b. Max Yearly	=	ton/yr * (100-effy)/100	
	=	0.5	tons/year
Maximum controlled PM10 emissions from storage loadout	=	Potential PM10 emissions * (100- control efficiency)/100	
a. Max Hourly	=	lb/hr * (100-effy)/100	
	=	1.0	lbs/hour
b. Max Yearly	=	ton/yr * (100-effy)/100	
	=	0.2	tons/year
Allowable PM emissions from Rule 326 IAC 6-3-2 for the storage loadout process	=	$55.0 * P^{0.11} - 40$	lbs/hour
	=	$55.0*(\text{north house ton/hr})^{0.11} - 40$	
	=	65.1	lbs/hour
	=	lb/hr*(hr/yr)/(lb/ton)	
	=	285	tons/year
Requested: State allowable PM emissions from the north storage loadout process for the purpose of permitting	=	Construction Permit PM emissions Limits	
	=	0.5	tons/year
	=	3.1	pounds/hour

PM emission limit basis: Same as PM emission basis #2. **Limit will be 0.009 lb/ton bean handled, equivalent to 4.2 TPY PM based on production limit**.

SOYBEAN CLEANING PROCESS

Grain Cleaning P4

Grain Cleaner System

PM Emission Factor	0.075	lb/ton	(AP-42,Section 9.9.1, Grain Cleaning)
PM10 Emission Factor	0.075	lb/ton	
PM10/PM ratio	1.000		
Rate/hour	115	tons (max.)	
Rate/year	940,240	tons (crush capacity)	
Capture efficiency	100	%	

Potential PM emissions for soybean cleaner system	=	Emission factor * process rate	
a. Max Hourly	=	(lb/ton)*(ton/hour)	
	=	8.63	lbs/hour
b. Max Yearly	=	(lb/ton)*(ton/year)/(2000 lb/ton)	
	=	35.3	tons/year

Potential PM10 emissions for soybean cleaner system	=	Emission factor * process rate	
a. Max Hourly	=	(lb/ton)*(ton/hour)	
	=	8.63	lbs/hour
b. Max Yearly	=	(lb/ton)*(ton/year)/(2000 lb/ton)	
	=	35.3	tons/year
Maximum controlled PM emissions from feed conveyor, cleaner and scale system	=	baghouse outlet grain loading * gas flow rate	
Filter	19,000	cfm	
Outlet loading	0.005	gr/scf	11/12/98 compliance test - meal loadout: 0.0011 gr/scf
a. Max Hourly	=	(gr/scf)* cfm *60 min/hour /7000 grains/lb	
	=	0.814	pounds/hour
b. Max Yearly	=	max hourly * 8,760hrs/yr / 2000 lb/ton	
		3.57	tons/year
Maximum controlled PM10 emissions from feed conveyor, cleaner and scale system	=	baghouse outlet grain loading * gas flow rate	
a. Max Hourly	=	(gr/scf) * cfm * 60 min/hour / 7000 grains/lb	
	=	0.814	pounds/hour
b. Max Yearly	=	max hourly * (8,760hrs/yr) /(2000 lb/ton)	
		3.57	tons/year
Allowable PM emissions from Rule 326 IAC 6-3-2 for the cleaning process	=	$55.0 * P^{0.11} - 40$	lbs/hour
	=	$55.0*(\text{rate/hr})^{0.11} - 40$	
	=	52.7	lbs/hour
	=	lb/hr*(hr/yr)/(lb/ton)	
	=	231	tons/year
Potential PM emissions from the cleaning process	=	conveyor PM + cleaning system PM	
	=	35.3	tons/year
State allowable PM emissions from the cleaning process for the purpose of permitting	=	Construction Permit PM emissions Limits	
	=	3.57	tons/year
	=	0.814	pounds/hour

PM emission limit basis #3: The hourly emission estimates are based on the presumed maximum exhaust grain loading (0.005 gr/acfm) of the baghouse control and the design air flow (acfm) of the exhaust fan. The emissions estimate basis would be modified from these presumptions (with requisite request to modify the allowable permitted emissions) if an emissions test would reveal the grain loading to be in excess of 0.005 gr/acfm or the air flow to be in excess of the design air flow. Operation of the control equipment coincident with process operation is accepted by the source as a permit condition. Continuous operation is presumed for annual emission estimating purposes. Thus, hourly and annual emission estimates are maximized based on source-accepted factors which are generally accepted industrial factors. The permit limits are these estimated emissions. Therefore, based on available information and best engineering judgement, the emission limits are based on the higher of the presumed or as-tested exhaust grain loading, the higher of the presumed or as-tested air flow, and continuous operation.

Soybean Heater P21

Process rate	230,000	lb/hr
	115	ton/hour (Max.)
	940,240	ton/year
PM emissions	0.06	pounds per hour (Preliminary emission test - 4/3/98)
PM emissions	0.008	pounds per hour (Initial compliance emission test - 11/10/98)
PM emissions	0.12	pounds per hour (used for emission calculations)
PM10/PM factor	1.00	

These emissions are emitted from the source without any control.

Potential PM emissions for soybean heater (soybean dryer) = 0.12 pounds per hour

a. Max Hourly = 0.12 lbs/hour

b. Max Yearly = pounds/hour * 8760 hours/year * ton/2000 pounds
= 0.53 tons/year

Potential PM10 emissions for soybean heater	=	Emission factor * process rate	
a. Max Hourly	=	Potential PM * PM10/PM factor	
	=	0.12	lbs/hour
b. Max Yearly	=	Potential PM * PM10/PM factor	
	=	0.53	tons/year
Allowable PM emissions from Rule 326 IAC 6-3-2 for the soybean heater	=	$55.0 * P^{0.11} - 40$	lbs/hour
	=	$55.0 * (\text{rate ton/hr})^{0.11} - 40$	
	=	52.7	lbs/hour
	=	231	tons/year
Potential PM emissions from the soybean heater	=	0.53	tons/year

State allowable PM emissions from the soybean heater for the purpose of permitting are included in the hot dehulling permitted emissions.

SOYBEAN DRYING / CRACKING / DEHULLING PROCESS

Soybean Cracking & Dehulling P5

PM Emission Factor	3.6	lb/ton	(AP-42, Section 9.11.1, Table 4.5)	(Vegetable Oil Processing)
PM10 Emission Factor	2.48	lb/ton		
PM10/PM ratio	0.69		From compliance tests: maximum % of PM of filter vs total:	69%
Process rate	115	ton/hour (Max.)		
Process rate	940,240	ton/year		

Potential PM emissions for soybean cracking & dehulling	=	Emission factor * process rate	
a. Max Hourly	=	(lb/ton * ton/hour)	
	=	414	lbs/hour
b. Max Yearly	=	lb/ton * ton/year / (lb/ton)	
	=	1,692	tons/year
Potential PM10 emissions for soybean cracking & dehulling	=	Emission factor * process rate	
a. Max Hourly	=	Potential PM * PM10/PM factor	
	=	285.7	lbs/hour
b. Max Yearly	=	Potential PM * PM10/PM factor	
	=	1,168	tons/year

Manufacturer (Crown Co.) guarantee on PM emissions from the bean heater, dryers, crackers, dehulling and hull refining is 12.4 lb/hour at 64,330 acfm at 148^{0}F, 18% relative humidity. This guarantee determines the maximum controlled PM emissions. This emission rate is guaranteed based on information available to the vendor.
Initial compliance testing conducted 11/13/98: 39,667 acfm, 6.02 lb/hr

Maximum controlled PM emissions for soybean cracking & dehulling	=	12.4	lbs/hour
a. Max Hourly	=	12.4	lbs/hour
b. Max Yearly	=	lb/hr * (hr/yr)/ lb/ton	
		54.3	tons/year
Maximum controlled PM10 emissions for the soybean cracking & dehulling	=	Potential PM * PM10/PM factor	
a. Max Hourly	=	lb/hr * PM10/PM ratio	
		8.6	lbs/hour
b. Max Yearly	=	ton/yr * PM10/PM ratio	
		37.5	tons/year
Allowable PM emissions from Rule 326 IAC 6-3-2 for the cracking & dehulling process	=	55.0* $P^{0.11}$ - 40	lbs/hour
	=	55.0*(rate per hr)$^{0.11}$ - 40	
	=	52.7	lbs/hour
	=	lb/hr*(hr/yr)/(lb/ton)	
	=	231	tons/year
Potential PM emissions from the cracking & dehulling process	=	cracking & dehulling system PM	
	=	54.3	tons/year
State allowable PM emissions from the cracking & dehulling process for the purpose of permitting	=	Construction Permit PM emissions Limits	
	=	54.3	tons/year
	=	12.4	lbs/hour

PM emission limit basis #4: Emission estimates are based on the manufacturer's emissions warrenty (lb/hour) and continuous operation. The warrenty presumes the operation of the PM control equipment whenever the process is in operation, which the source accepts as a permit condition. The as-tested emissions were determined to be below the warrenty. By estimating emissions in this manner, hourly and annual potential emissions are maximized based on physical limitations of the process and source-accepted permit conditions. The permit limits are these estimated emissions.

SOYBEAN FLAKING PROCESS

Flaking Process P19

PM Emission Factor	0.37	lb/ton	(AP-42, Section 9.11.1, Table 4.5)	
PM10 Emission Factor	0.23	lb/ton	(Vegetable Oil Processing)	
PM10/PM ratio	0.61	0.35/0.57	from AIRS 3/90	
Rate/hour	209,705	pounds	% of scale weight:	91.176%
Rate/hour	104.9	tons (Max.)		
Rate/year	857,273	tons		
Capture efficiency	100	%		

Potential PM emissions for soybean flaking	=	Emission factor * process rate	
a. Max Hourly	=	(lb/ton)*(ton/hour)	
	=	38.8	lbs/hour
b. Max Yearly	=	lb/hr*(ton/year)/(2000 lb/ton)	
	=	158.6	tons/year

Potential PM10 emissions for soybean flaking	=	Emission factor * process rate		
a. Max Hourly	=	PM10/PM ratio * lb/hr		
	=	23.8	lbs/hour	
b. Max Yearly	=	(PM10/PM ratio)*(rate ton/year)		
	=	97.4	tons/year	
Maximum controlled PM emissions from flaking system	=	baghouse outlet grain loading * gas flow rate		
Filter	9,000	dscfm	determined from 11/3/99 compliance test on flaker: dscfm	2074
Outlet loading	0.005	gr/dscfm	determined from 11/3/99 compliance test on flaker: gr/sdcfm	0.0018
a. Max Hourly	=	(0.005 gr/scf)* 9,000 scfm *60 min/hour /7000 grains/lb		
	=	0.39	pounds/hour	
b. Max Yearly	=	max hourly * 8,760hrs/yr / 2000 lb/ton		
		1.69	tons/year	
Maximum controlled PM10 emissions from flaking system	=	baghouse outlet grain loading * gas flow rate		
a. Max Hourly	=	(0.005 gr/scf)*9,000 cfm *60 min/hour /7000 grains/lb		
	=	0.39	pounds/hour	
b. Max Yearly	=	max hourly * (8,760hrs/yr) /(2000 lb/ton)		
		1.69	tons/year	
Allowable PM emissions from Rule 326 IAC 6-3-2 for the flaking process	=	$55.0 * P^{0.11} - 40$	lbs/hour	
	=	$55.0 * (\text{rate ton/hr})^{0.11} - 40$		
	=	51.8	lbs/hour	
	=	227	tons/year	
State allowable PM emissions from the flaking process for the purpose of permitting	=	Construction Permit PM emissions Limits		
	=	1.69	tons/year	
	=	0.39	pounds/hour	
	PM emission limit basis:	Same as PM emission basis #3.		

SOYBEAN EXPANDER P23

PM Emission Factor	0.5	lb/ton	(R.L. Henricks engineering judgment -	
PM10 Emission Factor	0.500	lb/ton	emissions will be similar to bean heater:	
PM10/PM ratio	1.00		soybean oil at ~18% in extruded material.)	
Process rate	50	ton/hour	System capacity:	1200 ton/day
Process rate	438,000	ton/year		
Cyclone Efficiency	90	%		

Potential PM emissions for soybean expander	=	Emission factor * process rate		
a. Max Hourly	=	(lb/ton * ton/hour)		
	=	25.00	lbs/hour	
b. Max Yearly	=	lb/ton * ton/year / (2000 lb/ton)		
	=	109.5	tons/year	

Potential PM10 emissions for soybean expander	=	Emission factor * process rate	
a. Max Hourly	=	Potential PM * PM10/PM factor	
	=	25.00	lbs/hour
b. Max Yearly	=	Potential PM * PM10/PM factor	
	=	109.5	tons/year
Maximum controlled PM emissions for soybean expander	=	Emission factor * process rate * (1-Cyclone Eff./100)	
a. Max Hourly	=	(lb/ton * ton/hour)*(1-Cyclone Eff./100)	
	=	2.50	lbs/hour
b. Max Yearly	=	lb/ton * ton/year / (2000 lb/ton) * (1-Cyclone Eff./100)	
	=	10.95	tons/year
Maximum controlled PM10 emissions for soybean expander	=	Emission factor * process rate * (1-Cyclone Eff./100)	
a. Max Hourly	=	Potential PM * PM10/PM factor	
	=	2.50	lbs/hour
b. Max Yearly	=	Potential PM * PM10/PM factor	
	=	10.95	tons/year
Allowable PM emissions from Rule 326 IAC 6-3-2 for expander process	=	$55.0 * P^{0.11} - 40$	lbs/hour
	=	$55.0*(\text{rate ton/hr})^{0.11} - 40$	
	=	44.6	lbs/hour
	=	195	tons/year
Requested: State allowable PM emissions from expander process for the purpose of permitting	=	Construction Permit PM emissions Limits	
	=	10.95	tons/year
	=	2.50	pounds/hour

PM emission limit basis #5: Emission estimates are based on the maximum hourly equipment capacity, the results of an emission test on similar equipment, the best engineering judgement of the pollutant control efficiency, and the annual process capacity (source-accepted permit condition). By estimating emissions in this manner, hourly potential emissions are maximized based on physical limitations of the process and the source-accepted permit condition to utilize the control during operation of the process. The annual emissions are based on the permitted throughput which is a source-accepted permit condition. Annual hours of operation do not enter into the calculations. The permit limits are these estimated emissions.

DTDC MEAL DRYING PROCESS

DTDC Dryer #1 (P10)

PM Emission Factor	1.8	lb/ton	(AP-42, Section 9.11.1, Table 4.5)
PM10 Emission Factor	1.8	lb/ton	(Vegetable Oil Processing)
PM10/PM ratio	1.00		
Rate/hour	166,863	pounds	% of scale weight 72.549%
Rate/hour	83.4	tons	
Rate/year	682,135	tons	
Air volume	8,979	dscfm	determined from 11/4/99 compliance test on meal dryer
PM concentration	0.07	grains/dscf	determined from 11/4/99 compliance test on meal dryer
PM emision rate	5.76	pounds/hr	determined from 11/4/99 compliance test on meal dryer
PM emision rate	10.00	pounds/hr	used for emissions calculations
Cyclone efficiency	95.24	%	determined from 11/4/99 compliance test on meal dryer
Cyclone efficiency	95.0	%	used for emissions calculations

Potential PM emissions for meal drying process	=	Emission factor * process rate	
a. Max Hourly	=	(lb/ton)*(rate ton/hr)	
	=	150.2	lbs/hour
b. Max Yearly	=	(lb/ton)*(ton/year)/(2000 lb/ton)	
	=	614	tons/year

Potential PM10 emissions for meal drying process	=	Emission factor * process rate	
a. Max Hourly	=	max PM hrly * PM10/PM ratio	
	=	150.2	lbs/hour
b. Max Yearly	=	max PM yrly * PM10/PM ratio	
	=	614	tons/year
Maximum controlled PM emissions from meal drying process	=	PM concentration * Air Flow	
a. Max Hourly	=	(gr/dscf) * (lb/7000 gr) * (air flow dscfm) * 60 min/hr	
	=	10.00	pounds/hour
b. Max Yearly	=	(Max hrly rate) * 8760/2000	
		43.8	tons/year
Maximum controlled PM10 emissions from meal drying process	=	PM concentration * PM10/PM ratio * Air Flow	
a. Max Hourly	=	(gr/dscf) * PM10/PM ratio * (lb/7000 gr) * (air flow dscfm) * 60 min/hr	
	=	10.00	pounds/hour
b. Max Yearly	=	(Max hrly rate) * 8760/2000	
		43.8	tons/year

DTDC Dryer #2 (P11)

PM Emission Factor	1.8	lb/ton	(AP-42, Section 9.11.1, Table 4.5)
PM10 Emission Factor	1.8	lb/ton	(Vegetable Oil Processing)
PM10/PM ratio	1.00		
Rate/hour	166,863	pounds	% of scale weight 72.549%
Rate/hour	83.4	tons	
Rate/year	682,135	tons	
Air volume	8,788	dscfm	determined from 11/4/99 compliance test on meal dryer
PM concentration	0.0017	grains/dscf	determined from 11/4/99 compliance test on meal dryer
PM emision rate	0.131	pounds/hr	determined from 11/4/99 compliance test on meal dryer
PM emision rate	1.8	pounds/hr	used for emissions calculations
Cyclone efficiency	99.9	%	determined from 11/4/99 compliance test on meal dryer
Cyclone efficiency	99.0	%	used for emissions calculations

Potential PM emissions for meal drying process	=	Emission factor * process rate	
a. Max Hourly	=	(lb/ton)*(rate ton/hr)	
	=	150.2	lbs/hour
b. Max Yearly	=	(lb/ton)*(ton/year)/(2000 lb/ton)	
	=	614	tons/year
Potential PM10 emissions for meal drying process	=	Emission factor * process rate	
a. Max Hourly	=	max PM hrly * PM10/PM ratio	
	=	150.2	lbs/hour
b. Max Yearly	=	max PM yrly * PM10/PM ratio	
	=	614	tons/year
Maximum controlled PM emissions from meal drying process	=	PM concentration * Air Flow	
a. Max Hourly	=	(gr/dscf) * (lb/7000 gr) * (air flow dscfm) * 60 min/hr	
	=	1.80	pounds/hour
b. Max Yearly	=	(Max hrly rate) * 8760/2000	
		7.88	tons/year

Maximum controlled PM10 emissions from meal drying process	=	PM concentration * PM10/PM ratio * Air Flow	
a. Max Hourly	=	(gr/dscf) * PM10/PM ratio * (lb/7000 gr) * (air flow dscfm) * 60 min/hr	
	=	1.80	pounds/hour
b. Max Yearly	=	(Max hrly rate) * 8760/2000	
		7.88	tons/year
Allowable PM emissions from Rule 326 IAC 6-3-2 for the meal drying process	=	$55.0 * P^{0.11} - 40$	lbs/hour
	=	$55.0*(\text{rate ton/hr})^{0.11} - 40$	
	=	49.5	lbs/hour
	=	ton/hr*8760/2000	
	=	217	tons/year
State allowable PM emissions from the meal drying process for the purpose of permitting	=	Construction Permit PM emissions Limits	
	=	51.7	tons/year
	=	11.8	pounds/hr

PM emission limit basis #6: Emission estimates are based on the maximum hourly equipment capacity, the results of an emission test on the system, and continuous operation. By estimating emissions in this manner, hourly potential emissions are maximized based on physical limitations of the process and the source-accepted permit condition to utilize the control during operation of the process. The permit limits are these estimated emissions.

DTDC MEAL COOLING PROCESS

DTDC Cooler P12

PM Emission Factor	1.9	lb/ton	(AP-42, Section 9.11.1, Table 4.5)
PM10 Emission Factor	1.9	lb/ton	(Vegetable Oil Processing)
PM10/PM ratio	1.00		
Rate/hour	166,863	pounds	% of scale weight 72.549%
Rate/hour	83.4	tons	
Rate/year	682,135	tons	
Air volume	6,751	dscfm	determined from 11/12/98 compliance test on meal cooler
PM concentration	0.0007	grains/dscf	determined from 11/12/98 compliance test on meal cooler
PM emision rate	0.041	pounds/hr	determined from 11/12/98 compliance test on meal cooler
PM emision rate	1.0	pounds/hr	used for emissions calculations
Cyclone efficiency	99.97	%	determined from 11/12/98 compliance test on meal cooler
Cyclone efficiency	99.0	%	used for emissions calculations

Potential PM emissions for meal cooling process	=	Emission factor * process rate	
a. Max Hourly	=	(lb/ton)*(rate ton/hour)	
	=	159	lbs/hour
b. Max Yearly	=	(lb/ton)*(rate ton/year)/(2000 lb/ton)	
	=	648	tons/year
Potential PM10 emissions for meal cooling process	=	Emission factor * process rate	
a. Max Hourly	=	PM hrly rate * PM10/PM ratio	
	=	158.5	lbs/hour
b. Max Yearly	=	PM yrly rate * PM10/PM ratio	
	=	648.0	tons/year

Maximum controlled PM emissions from meal cooling process	=	PM concentration * Air Flow	
a. Max Hourly	=	(gr/scfm) * (lb/7000 gr) * (air flow dscfm) * 60 min/hr	
	=	1.0	pounds/hour
b. Max Yearly	=	(Max hrly rate) * 8760/2000	
		4.4	tons/year
Maximum controlled PM10 emissions from meal cooling process	=	PM concentration * PM10/PM ratio * Air Flow	
a. Max Hourly	=	(gr/scfm) * PM10/PM ratio * (lb/7000 gr) * (air flow dscfm) * 60 min/hr	
	=	1.0	pounds/hour
b. Max Yearly	=	(Max hrly rate) * 8760/2000	
		4.4	tons/year
Allowable PM emissions from Rule 326 IAC 6-3-2 for meal cooling process	=	$55.0* P^{0.11} - 40$	lbs/hour
	=	$55.0*(\text{rate ton/hr})^{0.11} - 40$	
	=	49.5	lbs/hour
	=	217	tons/year
Current:			
State allowable PM emissions from the meal cooling process for the purpose of permitting	=	Construction Permit PM emissions Limits	
	=	54.8	tons/year
	=	12.5	pounds/hr
Requested:			
State allowable PM emissions from the meal cooling process for the purpose of permitting	=	Permit PM emissions Limits (requested)	
	=	4.4	tons/year
	=	1.0	pounds/hr

PM emission limit basis: Same as PM emission basis #6.

MEAL SIZING PROCESS

Meal Sizing P9

Emissions from the meal leg are included in the sizing emissions since both are aspirated by a common baghouse.

PM Emission Factor	3.4	lb/ton	(AP-42, Section 9.11.1, Table 4.5)	
PM10 Emission Factor	2.08	lb/ton	(Vegetable Oil Processing)	
PM10/PM ratio	0.611	(1.1/1.8)	from AIRS 3/90	
Rate/hour	166,863	pounds		
Rate/hour	83.4	tons	% of scale weight	72.549%
Rate/year	682,135	tons		
Capture efficiency	100	%		

Potential PM emissions for meal sizing	=	Emission factor * process rate	
a. Max Hourly	=	(lb/ton)*(rate ton/hour)	
	=	283.7	lbs/hour
b. Max Yearly	=	(lb/ton)*(rate ton/yr)/(2000 lb/ton)	
	=	1,160	tons/year
Potential PM10 emissions for meal sizing	=	Emission factor * process rate	
a. Max Hourly	=	(PM max hrly lb/hr) * PM10/PM ratio	
	=	173.4	lbs/hour
b. Max Yearly	=	(PM max yhrly ton/yr) * PM10/PM ratio	
	=	709	tons/year

Maximum controlled PM emissions from meal sizing	=	baghouse outlet grain loading * gas flow rate	
Filter	4,637	dscfm	detrmined from 11/10/98 compliance test
Outlet loading	0.0065	gr/dscf	determined from 11/10/98 compliance test
a. Max Hourly	=	(gr/dscf) * (dscfm) * 60 min/hour / 7000 grains/lb	
	=	0.26	pounds/hour
b. Max Yearly	=	max hourly * 8,760hrs/yr / 2000 lb/ton	
		1.13	tons/year
Maximum controlled PM10 emissions from meal sizing	=	baghouse outlet grain loading * gas flow rate	
a. Max Hourly	=	(0.0065 gr/scf)*4637 cfm *60 min/hour /7000 grains/lb	
	=	0.26	pounds/hour
b. Max Yearly	=	max hourly * (8,760hrs/yr) /(2000 lb/ton)	
		1.13	tons/year
Allowable PM emissions from Rule 326 IAC 6-3-2 for meal sizing	=	$55.0 * P^{0.11} - 40$	lbs/hour
	=	$55.0*(\text{rate ton/hr})^{0.11} - 40$	
	=	49.5	lbs/hour
	=	217	tons/year
State allowable PM emissions from meal sizing for the purpose of permitting	=	Construction Permit PM emissions Limits	
	=	1.13	tons/year
	=	0.26	pounds/hr

PM emission limit basis: Same as PM emission basis #6.

KAOLIN HANDLING PROCESS

Kaolin Bin P3

PM Emission Factor	1.4	lb/ton	(AP-42, Section 9.9.7-1, Starch Storage Bin)
PM10 Emission Factor	1.4	lb/ton	
Rate/hour	60,000	pounds	
Rate/hour	30	tons	
Rate/year	0.5	% of meal tons	
Meal rate	682,135	tons/year	
Filter	2,400	scfm	
Outlet loading	0.005	gr/scfm	
Potential PM emissions for Kaolin bin	=	Emission factor * process rate	
a. Max Hourly	=	(lb/ton)*(rate ton/hour)	
	=	42.0	lbs/hour
b. Max Yearly	=	(lb/ton)*(0.5/100)*(meal rate ton/hr)(8760 hrs/yr)/(2000 lb/ton)	
	=	2.4	tons/year
Potential PM10 emissions for Kaolin bin	=	Emission factor * process rate	
a. Max Hourly	=	(lb/ton)*(rate ton/hour)	
	=	42.0	lbs/hour
b. Max Yearly	=	(lb/ton)*(0.5/100)(meal rate ton/year)/(2000 lb/ton)	
	=	2.4	tons/year

Maximum controlled PM emissions from Kaolin bin	=	baghouse outlet grain loading * gas flow rate	
a. Max Hourly	=	(gr/scf) * (scfm) * 60 min/hour / 7000 grains/lb	
	=	0.103	pounds/hour
b. Max Yearly	=	(lb/hr)*((0.5/100)*(meal rate ton/yr))/30(ton/hr)/(2000 lb/ton)	
		0.006	tons/year
Maximum controlled PM10 emissions from Kaolin bin	=	baghouse outlet grain loading * gas flow rate	
a. Max Hourly	=	(gr/scf)* (scfm) * 60 min/hour / 7000 grains/lb	
	=	0.103	pounds/hour
b. Max Yearly	=	(lb/hr)*((0.5/100)*(meal rate ton/yr))/30(ton/hr)/(2000 lb/ton)	
		0.006	tons/year
Allowable PM emissions from Rule 326 IAC 6-3-2 for Kaolin bin	=	$4.10* P^{0.67}$	lbs/hour
	=	$4.10*(\text{rate ton/hr})^{0.67}$	
	=	40	lbs/hour
	=	175	tons/year
State allowable PM emissions from Kaolin bin for the purpose of permitting	=	Construction Permit PM emissions Limits	
	=	0.451	tons/year
	=	0.103	pounds/hr
Requested: State allowable PM emissions from Kaolin bin for the purpose of permitting	=	Construction Permit PM emissions Limits	
	=	0.451	tons/year
	=	0.103	pounds/hr

PM emission limit basis: Same as PM emission basis #3.

HULL GRINDING PROCESS

Hull grinding P6

PM Emission Factor	2.0	lb/ton	(AP-42, Section 9.11.1, Table 4.5)
PM10 Emission Factor	1.2	lb/ton	(Vegetable Oil Processing)
PM10/PM ratio	0.600	(1.2/2.0)	
Rate/hour	16,100	pounds	(7% of crush))
Rate/hour	8.05	tons	
Rate/year	65,817	tons	

	=	Emission factor * process rate	
Potential PM emissions for hull grinding			
a. Max Hourly	=	(lb/ton)*(rate ton/hour)	
	=	16.1	lbs/hour
b. Max Yearly	=	(lb/ton)*(rate ton/year)/(2000 lb/ton)	
	=	65.8	tons/year
Potential PM10 emissions for hull grinding	=	Emission factor * process rate	
a. Max Hourly	=	(PM max hrly) * (PM10/PM ratio)	
	=	9.7	lbs/hour
b. Max Yearly	=	(PM max yrly) * (PM10/PM ratio)	
	=	39.5	tons/year

Maximum controlled PM emissions from hull grinding	=	baghouse outlet grain loading * gas flow rate	
Filter	750	dscfm	
Outlet loading	0.005	gr/dscf	
a. Max Hourly	=	(gr/dscf) * (dscfm) * 60 min/hour / 7000 grains/lb	
	=	0.032	pounds/hour
b. Max Yearly	=	max hourly * 8,760hrs/yr / 2000 lb/ton	
		0.14	tons/year
Maximum controlled PM10 emissions from hull grinding	=	baghouse outlet grain loading * gas flow rate	
a. Max Hourly	=	(gr/dscf) * (dscfm) * 60 min/hour / 7000 grains/lb	
	=	0.032	pounds/hour
b. Max Yearly	=	max hourly * (8,760hrs/yr) /(2000 lb/ton)	
		0.14	tons/year
Allowable PM emissions from Rule 326 IAC 6-3-2 for hull grinding	=	$4.10*P^{0.67}$	lbs/hour
	=	$4.10*(\text{rate ton/hr})^{0.67}$	
	=	16.6	lbs/hour
	=	73	tons/year
Allowable PM emissions from hull grinding for permitting	=	Construction Permit PM emissions Limits	
	=	0.14	tons/year
	=	0.032	pounds/hour
	PM emission limit basis:	Same as PM emission basis #3.	

HULL STORAGE AND HANDLING PROCESS

Hull storage bins P7 & P7A

Loading P7

PM Emission Factor	0.03	lb/ton	(May '94 draft AP-42, Section 9.9.1-3)
PM10 Emission Factor	0.015	lb/ton	
PM10/PM ratio	0.5		
Rate/hour	20,000	pounds	
Rate/hour	10	tons	
Rate/year	65,817	tons	
Capture efficiency	100	%	

Potential PM emissions	=	Emission factor * process rate	
a. Max Hourly	=	(lb/ton)*(rate ton/hour)	
	=	0.30	lbs/hour
b. Max Yearly	=	(lb/ton)*(8760 hr/year)/(2000 lb/ton)	
	=	1.3	tons/year
Potential PM10 emissions	=	Emission factor * process rate	
a. Max Hourly	=	(PM max hrly) * (PM10/PM ratio)	
	=	0.15	lbs/hour
b. Max Yearly	=	(PM max yrly) * (PM10/PM ratio)	
	=	0.7	tons/year

Maximum controlled PM emissions	=	baghouse outlet grain loading * gas flow rate	
Filter	4,000	dscfm	
Outlet loading	0.005	gr/dscf	
a. Max Hourly	=	(gr/dscf) * (dscfm) * 60 min/hour / 7000 grains/lb	
	=	0.171	pounds/hour
b. Max Yearly	=	max hourly * 8,760hrs/yr / 2000 lb/ton	
		0.75	tons/year
Maximum controlled PM10 emissions	=	baghouse outlet grain loading * gas flow rate	
a. Max Hourly	=	(gr/dscf) * (dscfm) * 60 min/hour / 7000 grains/lb	
	=	0.171	pounds/hour
b. Max Yearly	=	max hourly * (8,760hrs/yr) /(2000 lb/ton)	
		0.75	tons/year

Unloading P7A

PM Emission Factor	0.03	lb/ton	(May '94 draft AP-42, Section 9.9.1-3)
PM10 Emission Factor	0.015	lb/ton	
PM10/PM ratio	0.5		
Rate/hour	30,000	pounds	
Rate/hour	15	tons	
Rate/year	65,817	tons	
Capture efficiency	100	%	
Potential PM emissions	=	Emission factor * process rate	
a. Max Hourly	=	(lb/ton)*(rate ton/hour)	
	=	0.45	lbs/hour
b. Max Yearly	=	(lb/ton)*(rate ton/hour)/2000	
	=	1.0	tons/year
Potential PM10 emissions	=	Emission factor * process rate	
a. Max Hourly	=	(lb/ton)*(rate ton/hour)	
	=	0.23	lbs/hour
b. Max Yearly	=	(lb/ton)*(rate ton/yr)/(2000 lb/ton)	
	=	0.5	tons/year
Maximum controlled PM emissions	=	baghouse outlet grain loading * gas flow rate	
Filter	4,000	dscfm	
Outlet loading	0.005	gr/dscf	
a. Max Hourly	=	(gr/dscf) * (dscfm) * 60 min/hour / 7000 grains/lb	
	=	0.171	pounds/hour
b. Max Yearly	=	max hourly * 8,760hrs/yr / 2000 lb/ton	
		0.75	tons/year

Maximum controlled PM10 emissions	=	baghouse outlet grain loading * gas flow rate	
a. Max Hourly	=	(gr/dscf) * (dscfm) * 60 min/hour / 7000 grains/lb	
	=	0.171	pounds/hour
b. Max Yearly	=	max hourly * (8,760hrs/yr) /(2000 lb/ton)	
		0.75	tons/year
Allowable PM emissions from Rule 326 IAC 6-3-2 for hull storage bins	=	$4.10*P^{0.67}$	lbs/hour
	=	$4.10*(\text{rate ton/hr})^{0.67}$	
	=	19.2	lbs/hour
	=	84	tons/year
Allowable PM emissions from hull storage bins for permitting	=	Construction Permit PM emissions Limits	
	=	1.5	tons/year
	=	0.342	pounds/hour

PM emission limit basis: Same as PM emission basis #3.

HULL PELLET COOLING PROCESS

Hull Pellet Cooling P8

PM Emission Factor	1.0	lb/ton	(T. P. Singha engineering judgment)
PM10 Emission Factor	0.5	lb/ton	
PM10/PM ratio	0.5		
Rate/hour	30,000	pounds	
Rate/hour	15	tons	
Rate/year	65,817	tons	
Capture efficiency	100	%	

Potential PM emissions	=	Emission factor * process rate	
a. Max Hourly	=	(lb/ton)*(rate ton/hour)	
	=	15	lbs/hour
b. Max Yearly	=	(max hrly)*(8760 hr/year)/(2000 lb/ton)	
	=	65.7	tons/year
Potential PM10 emissions	=	Emission factor * process rate	
a. Max Hourly	=	(PM max hrly) * (PM10/PM ratio)	
	=	7.5	lbs/hour
b. Max Yearly	=	(PM max yrly) * (PM10/PM ratio)	
	=	32.9	tons/year
Maximum controlled PM emissions	=	cyclone outlet grain loading * gas flow rate	

Cyclone	12,000	dscfm
Outlet loading	0.05	gr/dscf

a. Max Hourly	=	(gr/dscf) * (dscfm) * 60 min/hour / 7000 grains/lb	
	=	5.1	pounds/hour
b. Max Yearly	=	max hourly * 8,760hrs/yr / 2000 lb/ton	
		22.5	tons/year

Maximum controlled PM10 emissions	=	cyclone outlet grain loading * gas flow rate	
a. Max Hourly	=	(gr/dscf) * (dscfm) * 60 min/hour / 7000 grains/lb	
	=	5.1	pounds/hour
b. Max Yearly	=	max hourly * (8,760hrs/yr) /(2000 lb/ton)	
		22.5	tons/year
Allowable PM emissions from Rule 326 IAC 6-3-2 for hull pellet cooling	=	$4.10*P^{0.67}$	lbs/hour
	=	$4.10*(\text{rate ton/hr})^{0.67}$	
	=	25.2	lbs/hour
	=	110	tons/year
State allowable PM emissions from hull pellet cooling for the purpose of permitting	=	Construction Permit PM emissions Limits	
	=	22.5	tons/year
	=	5.1	pounds/hour

PM emission limit basis #7: The hourly emission estimates are based on the presumed maximum exhaust grain loading (0.005 gr/acfm) of the cyclone control and the design air flow (acfm) of the exhaust fan. The emissions estimate basis would be modified from these presumptions (with requisite request to modify the allowable permitted emissions) if an emissions test would reveal the grain loading to be in excess of 0.005 gr/acfm or the air flow to be in excess of the design air flow. Operation of the control equipment coincident with process operation is accepted by the source as a permit condition. Continuous operation is presumed for annual emission estimating purposes. Thus, hourly and annual emission estimates are maximized based on source-accepted factors which are generally accepted industrial factors. The permit limits are these estimated emissions. Therefore, based on available information and best engineering judgement, the emission limits are based on the higher of the presumed or as-tested exhaust grain loading, the higher of the presumed or as-tested air flow, and continuous operation.

HULL PELLET STORAGE HANDLING PROCESS

Hull pellet storage bins P8A

PM Emission Factor	0.03	lb/ton	(May '94 draft AP-42, Section 9.9.1-3)
PM10 Emission Factor	0.015	lb/ton	
PM10/PM ratio	0.5		
Rate/hour	30,000	pounds	
	15	tons	
Rate/year	65,817	tons	
Capture efficiency	100	%	

Potential PM emissions	=	Emission factor * process rate	
a. Max Hourly	=	(lb/ton)*(rate ton/hour)	
	=	0.45	lbs/hour
b. Max Yearly	=	(max hrly)*(8760 hr/year)/(2000 lb/ton)	
	=	2.0	tons/year
Potential PM10 emissions	=	Emission factor * process rate	
a. Max Hourly	=	(PM max hrly) * (PM10/PM ratio)	
	=	0.23	lbs/hour
b. Max Yearly	=	(PM max yrly) * (PM10/PM ratio)	
	=	1.0	tons/year

Maximum controlled PM emissions	=	baghouse outlet grain loading * gas flow rate	
Filter	4,000	dscfm	
Outlet loading	0.005	gr/dscf	
a. Max Hourly	=	(gr/dscf) * (dscfm) * 60 min/hour / 7000 grains/lb	
	=	0.171	pounds/hour
b. Max Yearly	=	max hourly * 8,760hrs/yr / 2000 lb/ton	
		0.75	tons/year
Maximum controlled PM10 emissions	=	baghouse outlet grain loading * gas flow rate	
a. Max Hourly	=	(gr/dscf) * (dscfm) * 60 min/hour / 7000 grains/lb	
	=	0.171	pounds/hour
b. Max Yearly	=	max hourly * (8,760hrs/yr) /(2000 lb/ton)	
		0.75	tons/year
Allowable PM emissions from Rule 326 IAC 6-3-2 for hull pellet storage bins	=	$4.10*P^{0.67}$	lbs/hour
	=	$4.10*(rate)^{0.67}$	
	=	25.2	lbs/hour
	=	110	tons/year
State allowable PM emissions from hull pellet storage bins for the purpose of permitting	=	Construction Permit PM emissions Limits	
	=	0.75	tons/year
	=	0.171	pounds/hour

PM emission limit basis: Same as PM emission basis #3.

BARGE RECEIVING / MEAL STORAGE AND LOADOUT PROCESS

Meal storage & meal loadout P20, P14, & P15
The meal conveyors are all totally enclosed conveyors.

PM Emission Factor	0.03	lb/ton	(May '94 draft AP-42, Section 9.9.1-3)
PM10 Emission Factor	0.0044	lb/ton	
PM10/PM ratio	0.148	(.04/0.27)	from AIRS 3/90
Process Rate/hour	167,697	pounds	(Includes 0.5% Kaolin)
	83.8	tons	
Loadout Rate/hour	746,968	pounds	
Rate/year	685,545	tons	(Includes 0.5% Kaolin)
Capture efficiency	100	%	

Meal storage bins P20

Potential PM emissions for meal storage bins	=	Emission factor * process rate	
a. Max Hourly	=	(lb/ton)*(rate ton/hour)	
	=	2.52	lbs/hour
b. Max Yearly	=	(lb/ton)*(rate ton/year)/(2000 lb/ton)	
	=	10.3	tons/year
Potential PM10 emissions for meal storage bins	=	Emission factor * process rate	
a. Max Hourly	=	(PM max hrly) * PM10/PM ratio	
	=	0.37	lbs/hour
b. Max Yearly	=	(PM max yrly) * PM10/PM ratio	
	=	1.5	tons/year

Meal loadout bins P20

Potential PM emissions for meal loadout bins = Emission factor * process rate

a. Max Hourly = (lb/ton)*(loadout rate lb/hr)/2000
= 11.2 lbs/hour

b. Max Yearly = (lb/ton)*(loadout rate ton/yr)/2000
= 10.3 tons/year

Potential PM10 emissions for meal loadout bins = Emission factor * process rate

a. Max Hourly = (PM max hrly) * PM10/PM ratio
= 1.66 lbs/hour

b. Max Yearly = (PM max hrly) * PM10/PM ratio
= 1.5 tons/year

Maximum controlled PM emissions from meal storage & loadout bins = baghouse outlet grain loading * gas flow rate

Filter 6000 scfm
Outlet loading 0.005 gr/scfm 11/12/98 compliance test - meal loadout: 0.0011 gr/cfm

a. Max Hourly = (gr/scf)* (scfm) * 60 min/hour / 7000 grains/lb
= 0.257 pounds/hour

b. Max Yearly = max hourly * 8,760hrs/yr / 2000 lb/ton
1.13 tons/year

Maximum controlled PM10 emissions from meal storage & loadout bins = baghouse outlet grain loading * gas flow rate

a. Max Hourly = (gr/scf)* (scfm) * 60 min/hour / 7000 grains/lb
= 0.257 pounds/hour

b. Max Yearly = max hourly * (8,760hrs/yr) /(2000 lb/ton)
1.13 tons/year

Allowable PM emissions from Rule 326 IAC 6-3-2 for the meal storage & meal loadout bins = $55.0* P^{0.11} - 40$ lbs/hour

= $55.0*(\text{loadout rate ton/hr})^{0.11} - 40$
= 65.5 lbs/hour
= 287 tons/year

Potential PM emissions from the meal storage & meal loadout bins = meal storage + meal loadout PM
= 20.6 tons/year

Requested:
State allowable PM emissions from the meal storage & meal loadout bins for the purpose of permitting = Construction Permit PM emissions Limits
= 1.13 tons/year
= 0.257 lbs/hour

PM emission limit basis: Same as PM emission basis #3.

Meal loadout: truck, rail, or barge P14 & P15

PM Emission Factor 0.27 lb/ton (AP-42, Section 9.11.1, Table 4.5)
PM10 Emission Factor 0.04 lb/ton (Vegetable Oil Processing)
PM10/PM ratio 0.148 (0.04/0.27)
Rate/hour 767,697 pounds (production + 300 tph from storage)
Rate/hour 383.8 tons
Rate/year 685,545 tons

Potential PM emissions for meal loadout = Emission factor * process rate

a. Max Hourly = (lb/ton)*(rate ton/hour)
= 104 lbs/hour

b. Max Yearly = (lb/ton)*(rate ton/yr)/2000
= 92.5 tons/year

Potential PM10 emissions for meal loadout = Emission factor * process rate

a. Max Hourly = (PM max hrly) * PM10/PM ratio
= 15.4 lbs/hour

b. Max Yearly = (PM max yrly) * PM10/PM ratio
= 13.7 tons/year

Meal truck loadout P14

Maximum controlled PM emissions from meal truck loadout = baghouse outlet grain loading * gas flow rate

Filter 16,000 scfm
Outlet loading 0.005 gr/scf 11/12/98 compliance test - meal loadout: 0.0011 gr/cfm

a. Max Hourly = (gr/dscf) * (dscfm) * 60 min/hour / 7000 grains/lb
= 0.7 pounds/hour

b. Max Yearly = max hourly * 8,760hrs/yr / 2000 lb/ton
3.0 tons/year

Maximum controlled PM10 emissions from meal truck loadout = baghouse outlet grain loading * gas flow rate

a. Max Hourly = (gr/dscf) * (dscfm) * 60 min/hour / 7000 grains/lb
= 0.7 pounds/hour

b. Max Yearly = max hourly * (8,760hrs/yr) /(2000 lb/ton)
3.0 tons/year

Allowable PM emissions from Rule 326 IAC 6-3-2 for the truck meal loadout system = $55.0 * P^{0.11} - 40$ lbs/hour

= $55.0*(\text{loadout rate ton/hr})^{0.11} - 40$
= 65.8 lbs/hour
= 288 tons/year

Potential PM emissions from the truck meal loadout system = meal loadout PM
= 92.5 tons/year

Requested:
State allowable PM emissions from the truck meal loadout system for the purpose of permitting = Construction Permit PM emissions Limits
= 3.0 tons/year
= 0.7 lbs/hour

PM emission limit basis: Same as PM emission basis #3.

Meal rail or barge loadout P15

Maximum controlled PM emissions from meal barge & rail loadout = baghouse outlet grain loading * gas flow rate

Filter 16,000 scfm 11/12/98 compliance test - meal loadout: 17,488 dscfm
Outlet loading 0.005 gr/scfm 11/12/98 compliance test - meal loadout: 0.0011 gr/cfm

a. Max Hourly = (gr/dscf) * (dscfm) * 60 min/hour / 7000 grains/lb
= 0.7 pounds/hour

b. Max Yearly = max hourly * 8,760hrs/yr / 2000 lb/ton
3.0 tons/year

Maximum controlled PM10 emissions from meal barge & rail loadout	=	baghouse outlet grain loading * gas flow rate	
a. Max Hourly	=	(gr/dscf) * (dscfm) * 60 min/hour / 7000 grains/lb	
	=	0.7	pounds/hour
b. Max Yearly	=	max hourly * (8,760hrs/yr) /(2000 lb/ton)	
		3.0	tons/year
Allowable PM emissions from Rule 326 IAC 6-3-2 for the barge and rail meal loadout systems	=	$55.0 * P^{0.11} - 40$	lbs/hour
	=	$55.0*(\text{loadout rate ton/hr})^{0.11} - 40$	
	=	65.8	lbs/hour
	=	288	tons/year
Potential PM emissions from the barge & rail meal loadout systems	=	meal loadout PM	
	=	92.5	tons/year
Requested:			
State allowable PM emissions from the barge & rail meal loadout systems for the purpose of permitting	=	Construction Permit PM emissions Limits	
	=	3.0	tons/year
	=	0.7	lbs/hour

PM emission limit basis: Same as PM emission basis #3.

HEATING UNITS

Boilers P17, P18 & P18A

Emission factors for natural gas combustion are from AP42, Tables 1.4-1,-2,-3, revision 03/98.

Heat input/boiler	33.659	Million BTU/hr
Number of boilers	3	
VOC emission factor	48	% of TOC factor
TOC emission factor	5.8	$lb/10^6$ cf n-gas

Unit	PM (lb/unit)	PM10 (lb/unit)	SO2 (lb/unit)	NOx (lb/unit)	VOC (lb/unit)	CO (lb/unit)
million cu. ft. burned	7.6	7.6	0.6	100	5.5	84

Potential natural gas usage	=	3*33.659 million BTU/hr * (8760 hr/year)/(1000 BTU/cu ft)	
	=	884.6	Million cu ft/year

Fuel Use Mcf/yr	PM ton/year	PM10 ton/year	SO2 ton/year	NOx ton/year	VOC ton/year	CO ton/year
884.6	3.36	3.36	0.27	44.2	2.43	37.2

Allowable PM emissions from Rule 326 IAC 6-2-4 for the heating units.	=	1.09/Q^0.26	pounds PM / MM BTU/hr
	=	0.328	pounds PM / MM BTU/hr
	=	11.05	Pounds / hour
	=	48.41	Tons / year

Hexane (VOC) emissions

Expected hexane disappearance (VOC use):	0.19	gal hexane /ton of crush.
	1.05	lb hexane /ton
	5.6	lb hexane /gallon

Requested:
State allowable overall hexane useage from the vegetable oil extraction system for the purpose of permitting = 0.225 gallons hexane /ton of soybeans crushed.

Emission limit basis: BACT analysis solvent use rate reduced by ratio of new process soybean crush limit to historical proccess soybean crush limit:
0.24*(882,877/940,240) = 0.225

Process design	=	2760	tons/day
	=	115	tons/hr (Max.)
Base process limit on		365	day/yr operation
Process limit	=	940,240	tons/year
Normal operation	=	365	day/yr operation

Solvent disappearance:

Hexane inventory loss	=	crush tons/year x gal loss/ton x 5.6 lb/gal x 1 ton/2000 lb
	=	494 tons/year

Soybean Oil Extraction Volatile Organic Compounds (VOC) Emissions

Hexane is lost from the extraction and desolventizing operations in soybean extraction plants in many areas. These include:

Point sources

a) Vent system gas during normal operation
b) Desolventized meal dryer 1 and 2
c) Desolventized meal cooler
d) Hexane storage tank

Fugitive emissions

e) Plant start-up / shutdowns
f) Plant upsets
g) General - equipment failures/leaks
h) Solvent samples

Bound in product/by-product

i) Desolventized flakes (meal)
j) Extracted soybean oil
k) Process wastewater

Area 1 - Main gas vent (Mineral Oil Absorber) P13

A. Normal operating conditions

			11/11/98 compliance test
Mineral Oil Absorber discharge maximum	50	ft^3/min air at 90^0F	39 cfm @ 75 F
Mineral Oil Absorber discharge normal	50	% LEL (LEL = 1.2%)	21 % LEL
Crush/Process rate normal	115.000	ton/hr	1.32 lb/hr

Inlet to absorber = (cfm)*(1 lb air/15 cf)*(0.54 lb hexane/0.43 lb air)*60 min/hr)
= 251 lb/hr

Outlet from absorber = (cfm)*(1 lb air/5 cf)*(60 min/hr)*1.2%*50% LEL
= 3.60 lb/hr
= (outlet lb/hr)*(8760 hr/yr) / (2000 lb/ton)
= 15.8 ton/yr

Hexane emissions during normal operation	=	Emission rate/processing rate	
	=	(outlet lb/hr)/(process rate ton/hr)	
	=	0.031	lb/ton crush
Efficiency of absorber	=	(Inlet - Outlet)/Inlet * 100%	
		98.6	%
Requested:			
State allowable hexane emissions from the oil extractor, meal desolventizer, oil desolventizer, solvent separator, and vent system for the purposes of permitting	=	0.084	gallons hexane /ton of soybeans crushed.

Emission limit basis: BACT analysis solvent loss rate reduced by ratio of new process soybean crush limit to historical proccess soybean crush limit:
0.089*(882,877/940,240) = 0.084

B. Upset Operating Conditions

Upset frequency (average)	15	times/year
Upset duration (average)	4	hours/occurrence
Air flow rate (maximum)	161	cfm
Hexane outlet concentration (maximum)	100	% LEL

Outlet from absorber (maximum)	=	(cfm)*(100%)*(1.2%)*(1 lb/15 cf)*(60 min/hour)	
	=	7.7	lb/hr
	=	(lb/hr)*(hr/year)/(2000 lb/ton)	
	=	0.23	ton/year
Hexane emissions - upset	=	Emission rate/processing rate	
	=	(ton/yr)*(2000 lb/ton)/(process ton/yr)	
	=	0.0005	lb/ton crush
Total absorber hexane emissions	=	Normal + Upset emissions	
		16.0	ton/year
Hexane emissions during normal operation and upset conditions	=	Emission rate/processing rate	
	=	(loss ton/yr)*(2000 lb/ton)/(crush ton/year)	
	=	0.034	lb/ton crush

Area 2 - Process Waste Water

Normal operating conditions occur at all times, no upsets.
All process waste water is recycled.

Water flow	0	lb/hr
Hexane content	0	ppm

Area 3 - Extracted Soybean Oil

Normal operating conditions occur at all times

Weight % oil in beans	18	%	1998 measurements
Hexane in finished oil	100	ppm	40 ppm

Maximum hexane lost in oil	=	(maximum hexane lost in oil/10^6)*(weight % oil in beans)*(ton beans/hr)*(2000 lb/ton)	
	=	4.1	lb/hr
	=	(maximum hexane lost in oil/10^6)*(weight % oil in beans)*(ton beans/yr)	
	=	16.9	ton/year
Hexane lost in oil	=	(loss lb/hr)/(ton crush/hr)	
	=	0.036	lb/ton crush

Area 4 - Dryer One flake desolventizing P10

A. Normal operating conditions

			1999 compliance tests
Flakes in beans	73	% weight	5.36 lb/hour
Hexane in meal to dryer	250	ppm	
Hexane in meal from dryer	180	ppm	

Maximum hexane emissions = (crush ton/hr)*(2000 lb/ton)*(% weight)*(ppm drop/1,000,000)
= 11.8 lb/hr
= crush ton/year x (% weight) x (ppm drop/1,000,000)
= 48.0 ton/yr

Hexane emissions during normal operation = Emission rate/processing rate
= (loss lb/hr)/(crush ton/hr)
= 0.102 lb/ton crush

B. Upset conditions

Hexane in meal to dryer	2,000	ppm
Hexane in meal from dryer	1,440	ppm
Post dryer flake concentration:	1440	ppm hexane

Maximum hexane emissions = (crush ton/hr)*(2000 lb/ton)*(% weight)*(ppm drop) ppm
= 94.0 lb/hr
= (crush ton/yr)*2000 lb/ton / 8760 *(% weight)*(ppm drop) ppm*(60 hour/year)/(2000 lb/ton)
= 2.6 ton/yr

Hexane emissions during upset conditions = Emission rate/processing rate
= (loss ton/yr)*(2000 lb/tn)/(crush ton/yr)
= 0.006 lb/ton crush

Total hexane emissions = Emissions during normal operation + upset conditions
= 50.7 ton/year

Hexane emissions from Dryer 1 = (loss ton/year)*(2000 lb/ton)/(ton crush/yr)
= 0.108 lb/ton crush

Area 5 - Dryer Two flake desolventizing P11

A. Normal operating conditions

			1999 compliance tests
Flakes in beans	73	% weight	1.58 lb/hour
Hexane in meal to dryer	180	ppm	
Hexane in meal from dryer	150	ppm	

Maximum hexane emissions = (crush ton/hr)*(2000 lb/ton)*(% weight)*(ppm drop/1,000,000)
= 5.0 lb/hr
= (crush ton/year)*(0.73)*(ppm drop)/1,000,000
= 20.6 ton/yr

Hexane emissions during normal operation	=	Emission rate/processing rate	
	=	(loss lb/hr)/(crush ton/hr)	
	=	0.044	lb/ton crush

B. Upset conditions

Hexane in meal to dryer	1,440	ppm
Hexane in meal from dryer	1,200	ppm
Post dryer flake concentration: i	1200	ppm hexane

Maximum hexane emissions	=	(crush ton/hr)*(2000 lb/ton)*(% weight)*(ppm drop)	
	=	40.3	lb/hr
	=	(crush ton/yr)*2000 lb/ton / 8760 *(% weight)*(ppm drop) ppm*(60 hour/year)/(2000 lb/ton)	
	=	1.1	ton/yr
Hexane emissions during upset conditions	=	Emission rate/processing rate	
	=	(los ton/yr)*(2000 lb/tn)/(crush ton/yr)	
	=	0.002	lb/ton crush
Total hexane emissions	=	Emissions during normal operation + upset conditions	
	=	21.7	ton/year
Hexane emissions from Dryer 2	=	(loss ton/year)*(2000 lb/ton)/(ton crush/yr)	
	=	0.046	lb/ton crush
Total dryer hexane emissions	=	Emissions during normal operation + upset conditions	
	=	72.4	ton/year
Total dryer hexane emissions	=	(loss ton/year)*(2000lb/ton)/(crush ton/year)	
	=	0.154	lb/ton crush
Requested: State allowable hexane emissions from the meal dryer for the purposes of permitting	=	0.30	gallons hexane /ton of soybeans crushed.

Emission limit basis: BACT analysis solvent loss rate reduced by ratio of new process soybean crush limit to historical proccess soybean crush limit: 0.323*(882,877/940,240) = 0.303

Area 6 - Cooler flake desolventizing P12

A. Normal operating conditions

Flakes in beans	73	% weight	1998 compliance tests
Hexane in meal to cooler	150	ppm	1.05 lb/hour
Hexane in meal from cooler	130	ppm	

Maximum hexane emissions	=	(crush ton/hr)*(2000 lb/ton)*(% weight)*(ppm drop/1,000,000)	
	=	3.4	lb/hr
	=	(crush ton/year)*(% weight)*(ppm drop/1,000,000)	
	=	13.7	ton/yr
Hexane emissions during normal operation	=	Emission rate/processing rate	
	=	(loss lb/hr)/(crush ton/hr)	
	=	0.029	lb/ton crush

B. Upset conditions

Hexane in meal to cooler	930	ppm	
Hexane in meal from cooler	806	ppm	
Post dryer flake concentration: i	806	ppm hexane	

Maximum hexane emissions	=	(crush ton/hr)*(2000 lb/ton)*(% weight)*(drop in ppm)	
	=	20.8	lb/hr
	=	(crush ton/yr)*2000 lb/ton / 8760 *(% weight)*(ppm drop) ppm*(60 hour/year)/(2000 lb/ton)	
	=	0.6	ton/yr
Hexane emissions during upset conditions	=	Emission rate/processing rate	
	=	(loss ton/yr)*(2000 lb/tn)/(crush ton/yr)	
	=	0.001	lb/ton crush
Total hexane emissions	=	Emissions during normal operation + upset conditions	
	=	14.3	ton/year
Hexane emissions from cooler	=	(loss ton/year)*(2000 lb/ton)/(ton crush/yr)	
	=	0.030	lb/ton crush
Requested: State allowable hexane emissions from the meal cooler for the purposes of permitting	=	0.051	gallons hexane /ton of soybeans crushed.

Emission limit basis: BACT analysis solvent loss rate reduced by ratio of new process soybean crush limit to historical proccess soybean crush limit: 0.054*(882,877/940,240) = 0.0507

Area 7 - Hexane Remaining in meal (flakes)

A. Normal operating conditions

Flakes in beans	73	% weight	
Hexane in meal	130	ppm	
Maximum hexane in meal	=	(ton/hr)*(2000 lb/ton)*(% weight)*(ppm)/(1,000,000}	
	=	21.8	lb/hr
	=	(crush ton/year)*(% weight)*(ppm/1,000,000)	
	=	89.2	ton/yr
Hexane in meal during normal operation	=	Content/processing rate	
	=	(loss lb/hr)/(crush ton/hr)	
	=	0.190	lb/ton crush

B. Upset conditions

Hexane in meal to cooler	806	ppm	
Maximum hexane in meal	=	(ton/hr)*(2000 lb/ton)*(% weight)*(ppm)	
	=	135.3	lb/hr
	=	(loss lb/hr)*(60 hour/year)/(2000 lb/ton)	
	=	4.06	ton/yr
Hexane in meal during upset conditions	=	Emission rate/processing rate	
	=	(loss ton/yr)*(2000 lb/tn)/(crush ton/yr)	
	=	0.009	lb/ton crush
Total hexane in meal	=	Hexane in meal during normal operation + upset conditions	
	=	93.3	ton/year
Hexane in meal	=	(total hexane ton/year)*(2000 lb/ton)/(ton crush/yr)	
	=	0.198	lb/ton crush

Area 8 - Start-up/Shutdowns

Start-up/Shutdown Conditions (Fugitive losses)

Startup solvent loss	11,200	lbs	or	2,000	gal
Shutdown solvent loss	11,200	lbs	or	2,000	gal
Hexane density	5.6	lb/gal			
Total loss for 1 startup/shutdown	22,400	lbs	or	4,000	gal
Duration of startup	2	hrs			
Duration of shutdown	2	hrs			
Duration for 1 startup/shutdown	4	hrs			
Frequency of startup/shutdown	4	times/year			
Total duration	16	hrs/year			

Maximum hexane emissions = (22,400 lb/occ.)/(4 hr/occ.)
= 5,600 lbs/hr

Total Hexane emissions = (loss lb/hr)*(hr/yr)/(2000 lb/ton)
= 44.8 ton/year

Hexane emissions = (loss ton/year)*(2000 lb/ton)/(ton crush/year)
= 0.095 lb/ton crush

Area 9 - Plant Upsets

Upset conditions (Fugitive losses)

When the process system is under pressure assume hexane loss to the atmosphere is equal to the volume of air normally pulled into the system.

Duration	4	hrs
Frequency	15	times/year
Total duration	60	hrs/year

Flow of air in the flakes = (crush ton/yr / 8760)*(% weight/100)*(2000 lb/ton)*(1 hour/60 min)*(1 cf/60 lb)
= 43.5 cfm

The volume of hexane lost will be equal to the air drawn into the system during normal operations.

Hexane loss = 50 ft^3/min - 43.5 ft^3/min
= 6.5 cfm

Maximum hexane emissions = (cfm)*(60 min/hr)*(1 lb/15 cf)*(4 hour/occ)*(15 occ/yr)*(1 ton/2000 lb)
= 0.78 ton/yr

Hexane emissions due to upsets = (loss ton/year)*(2000 lb/ton)/(ton crush/yr)
= 0.002 lb/ton crush

Area 10 - General Leaks and Equipment Failures (fugitive emissions)

Various potential sources of leaks exist throughout the plant.

Annual leak average	0.5	lb/ton crush (by experience)
It occurs throughout the year.		
No identifiable conditions.		

Average hexane emissions	=	(0.5 lb/ton)*(crush ton/hr)	
	=	57.5	lb/hr
Annual total hexane emissions	=	(0.5 lb/ton)*(crush ton/yr)/(2000 lb/ton)	
	=	235.1	ton/yr

Area 11 - Sampling (fugitive losses)

A small amount of hexane is lost with sampling and unloading of purchased hexane.

Sampling frequency	24	samples/day (during normal operation)
Sample volume	0.1	gallon
Sample content	90	% hexane

Hexane emissions	=	(24 samples/day)*(365 day/year)*(0.1 gal/sample)*(5.6 lb/gal)* (90%/100)*(1 ton/2000 lb)	
	=	2.2	ton/yr
Annual total hexane emissions	=	(loss ton/year)*(2000 lb/ton)/(ton crush/yr)	
	=	0.005	lb/ton crush

Area 12 - Hexane vapors remaining in delivery truck after unloading

Hexane loss	=	(Amount of truck volume emptied)*(lb hexane/lb vapor)* (density of vapor)	
	=	(loss tn/yr)*(2000 lb/tn)*(gal/5.6 lb)*(1 cf/7.48 gal)*(1 lb/15 cf air)* (0.54 lb hexane/0.43 lb air vapor)*(1 ton/2000 lb)	
	=	0.99	ton/yr
Annual total hexane emissions	=	(loss ton/year)*(2000 lb/ton)/(940,240 ton crush/yr)	
	=	0.002	lb/ton crush

Area 13 - Hexane vented from storage tank

Hexane storage is always vented to the mineral absorption system.
Therefore, no tank venting of breathing or working losses to the atmosphere occur.

Hexane loss	=	0.0	ton/yr
	=	0.0	lb/ton crush

Hexane Loss Breakdown (ton/year)

Type of Disappearance	Disappearance Normal Operations (ton/year)	Disappearance Upset Conditions (ton/year)	Disappearance Normal +Upset (ton/year)
Air Emissions-Point Sources			
Vent system (mineral oil absorber)	15.8	0.2	16.0
Desolventized meal dryer 1	48.0	2.6	50.7
Desolventized meal dryer 2	20.6	1.1	21.7
Desolventized meal cooler	13.7	0.6	14.3
Subtotal	98.1	4.6	102.7
Air Emissions-Fugitive			
Start-ups / shutdowns		44.8	44.8
Plant upsets		0.8	0.8
Sampling/hexane unloading	3.2		3.2
General	235.1		235.1
Subtotal	238.3	45.6	283.8
Products & byproducts			
Oil	16.9		16.9
Meal	89.2	4.06	93.3
Waste water	0.0		0.0
Subtotal	106.2	4.1	110.2
Total	442.5	54.2	496.8

Hexane Loss Breakdown (lb/ton)

Type of Disappearance	Disappearance Normal Operations (lb/ton)	Disappearance Upset Conditions (lb/ton)	Disappearance Normal +Upset (lb/ton)
Air Emissions-Point Sources			
Vent system (mineral oil absorber)	0.03	0.0005	0.03
Desolventized meal dryer 1	0.10	0.006	0.11
Desolventized meal dryer 2	0.04	0.002	0.05
Desolventized meal cooler	0.03	0.001	0.03
Subtotal	0.21	0.01	0.22
Air Emissions-Fugitive			
Start-ups / shutdowns		0.10	0.1
Plant upsets		0.002	0.002
Sampling/hexane unloading	0.01		0.01
General	0.5		0.5
Subtotal	0.51	0.10	0.60
Products & byproducts			
Oil	0.04		0.04
Meal	0.19	0.01	0.20
Waste water	0.00		0.00
Subtotal	0.23	0.01	0.23
Total	0.94	0.12	1.05